### ARIZONA MEDICINE

Journal of ARIZONA MEDICAL ASSOCIATION

VOL. 11, NO. 12

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DECEMBER, 1954

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Published monthly by the Arizona Medical Association. Business office at 321 Heard Building, Phoenix, Arizona. Subscription \$3.00 a year, single copy 25c. Entered as second class matter March 1, 1921, at confice at Phoenix, Arizona, Act of March 3, 1879.

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# ARIZONA MEDICINE Gournal of Arizona Medical Association

VOL. 11, NO. 12



DECEMBER, 1954

# Original ARTICLES

### LIPOMAS OF THE G.I. TRACT

Ord L. Shumway, M.D. Phoenix, Arizona

THE PRESENCE of lipomas in the gastro-intestinal tract was first recognized by Bauer nearly 200 years ago, but it was not until 1876 that Morel reported intussusception of the bowel secondary to these tumors. As interest in this surgical problem developed the number of reported clinical cases increased from 72 in 1909 (Stitten) to 310 in 1951 (Warren). Additional numbers of asymptomatic cases were identified at autopsy and the incidence varried from 0.18% to 0.75% in thousands of consecutive necropsies reported in the literature. Compared to other benign gastro-intestinal lesions lipomas rate next to adenomas of the colon and myoma of the stomach in incidence, and have been found in all parts of the tract from esophagus to rectum. Approximately 50% of lipomas are found in the colon with the major portion of the remainder in ileum and stomach. Weiner and Polaye in 1938 gave the following breakdown on 248 cases: Esophagus 0.8%, stomach 12.5%, duodenum 7.7%, small intestine 27.4%, illeocecal region 4.8%, and colon and rectum 46.8%. Within the large bowel the short right colon and cecum contain 50% of the colonic lipomas, with the remander distributed throughout the descending colon, transverse colon and rectum in that order of frequency.

Pathology

Lipomas are composed of a collection of well circumscribed adult fat cells with a fine septate supporting stroma. They apparently originate 90% of the time between the muscularis mucosa and the inner circular muscle layer of the

bowel wall; although origin between the circular and longitudinal muscle layers or in the subserosa has been reported(16). Pedunculation is favored by the traction of peristalsis although the growth remains sessile in a fairly high per cent of cases(12). Ulceration of the overlying mucosa due to pressure and abrasion is a frequent occurence, and bleeding follows

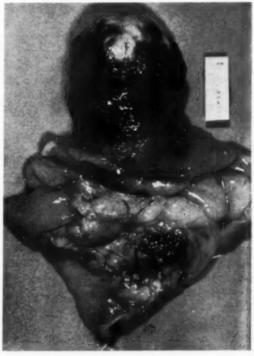


Fig. No. 1. A pedunculated lipomatous polyp of the colon showing an ulcerated mucosal surface. (Case No. 1).

Read at the Regular Monthly Staff Conference, Maricopa County General Hospital, Sept. 20, 1954. (14) (Fig. 1). Torsion on a pedicle interferes with the blood supply and infarction or even spontaneous extrusion may result in 10 - 20%(3). The subserous varieties occasionally expand to 15 - 20 cm. in size before producing symptoms, but the sub-mucous type gives rise to early trouble because of obturation and intussusception. Ellis and Windham (6) report benign tumors of small bowel produce intussusception in \$3 to 44%; while Long(10) found ten of 31 lipomas of the colon produced intussusception. Symptomatology

Symptoms produced by the presence of intestinal lipomas are produced by three factors:

1. Obstruction;

2. Intussusception;

3. Ulceration with hemorrhage. Symptoms persist for an average of 3-4 years before definitive treatment is performed. The outstanding complaint is abdominal pain which may be vague, fleeting, and infrequent but recurrent over many months (14, 16) (obturation), but occasionally is punctuated by severe attacks of diffuse cramping abdominal pain with constipation or bloody stools (intussusception).

An abdominal mass may be palpated in 50 to 75% and when associated with intussesception, is usually sausage-shaped, slightly tender and mobile. The presence of a migratory abdominal tumor occurring with the above symptoms is suggestive evidence of intussusception and will eventually develop in about 50% of the cases (19). It is of interest to note that intussusception in the adult is usually associated with a benign intra-luminal tumor.

Constipation occurs in 50% of reported cases and may due to interference with the fecal stream by the presence of an intra-luminal mass. On the other hand, diarrhea does occur and is most likely associated with intermittent release of obstruction.

Melena is not rare (11, 16) and occasionally is severe enough to be associated with a secondary anemia. In adults the source of the bleeding is usually from the ulcerated tumor surface rather than from intussuscepted bowel(6) as contrasted to spontaneous intussusception in infants.

Weight loss may suggest the presence of a malignancy but is due to voluntary restriction of food intake on the patient's part to avoid resultant abdominal cramps and discomfort.

### Diagnosis

In view of the symptomatology and the fact

that the average age at onset is 53 it is not surprising that the most frequent diagnosis made is carcinoma(15). The long period of symptoms without the degree of physical deterioration that accompanies malignancy should suggest the diagnosis of a benign tumor, however. Unfortunately, even with the abdomen open the presence of enlarged nodes secondary to an inflammatory reaction may occasionally falsely lead to an operative diagnosis of malignancy.

Proctoscopy is of value in visualizing lowlying lipomas of the large bowel but the most information can be obtained by repeated x-ray examinations. Flat films of the abdomen usually fail to demonstrate the tumor unless outlined by a gas-filled cecum. Fat is the most radiolucent of body tissues and lipomas appear less dense radiologically than adenomas(18). If intussusception is in progress a cylindrical homogenous mass surrounded by an air-filled sheath is occasionally demonstrated(12).

The use of barium enemas usually outlines a lipoma of the large bowel in a satisfactory manner. Care should be taken to avoid using too much barium and obscuring the rounded, smooth, and frequently lobulated filling defect. A further point to observe as elaborated by Palazzo(12) is that the tumor involves but one



Fig. No. 2 (A). A submucosal lipoma of the cecum demonstrating involvement of the lateral wall only. (Case No. 2).



Fig. No. 2 (B). A carcinoma of the cecum showing involvement of the entire circumference of the bowel wall.



Fig. No. 3, A radiotranslucent lipomatous polyp that produced intermittent infussusception of the descending colon. (Case No. 1)

side of the bowel and never the circumference as in carcinoma (Fig. 2 A & B). In profile the junction of tumor and bowel wall is abrupt with a sharp, clear angle. There may be dimpling or narrowing at the site of origin particularly if the lipoma is pedunculated. With intussusception the barium enema may be seen to meet the head of the intussusception and fill the narrow central canal demonstrating longitudinal folds. The peripheral sheath on filling produces spiral coils suggesting a coiled-spring appearance. Occasionally the enema may reduce the intussusception and show the polypoid mass(15) (Fig. 3).

Lipomas of the small bowel can usually be demonstrated with barium meal and painstaking examination.

### Therapy

Because of the severity and frequency of complicating factors, principally intussusception, all benign tumors of the small and large bowel should be removed surgically(10). Gastric lipomas with hemorrhage requires subtotal gastrectomy frequently and the majority of bowel

lipomas have heretofore been subject to segmental resection(13). In view of the extremely low recurrence rate and since there is no tendency towards malignant degeneration a less radical approach is preferable in many instances. If the diagnosis of a benign tumor can be entertained pre-operatively and confirmed at surgery a colotomy and local excision with the attending lower morbidity and mortality should be chosen. When the tumor has undergone intussusception the mortality may approach 25%. The intussusception is reduced manually where possible and colotomy performed, but if the intussusception is irreducible, segmental resection is required. When the bowel is not prepared with antibiotics, and in severely ill cases, a Mikulicz exteriorization or a proximal colostomy may be life saving.

The following two instances of lipoma of the colon were treated on the Surgical Service at Maricopa County Hospital in 1953:

### Case No. 1

A 47 year old white female was admitted to

the Maricopa County Hospital April 23, 1953. complaining of abdominal cramps and mucoid stools of two year's duration. On several occasions she had passed bloody mucous per rectum and a diagnosis of ulcerative colitis had been entertained by her private physician. Two weeks prior to admission she again had bloody mucoid stools with cramps and on straining down experienced a sensation of a mass inside the rectum. Physical examination was normal except for surgically absent uterus and a mass palpated at the tip of the examining finger within the lumen of the rectum. Laboratory examination of blood, urine, and blood chemistry was within normal limits and an EKG was normal. Stool studies revealed Endamoeba histolytica cysts on repeated examinations, and biopsies of rectal mucosa were normal. Barium enema was interpreted as indicating an intussuscepting mass in the sigmoid colon.

The patient was treated for the amoebiasis with aureomycin and carbarsone with subsequent negative stools for ova. Laparotomy subsequently revealed an intussuscepting lesion in sigmoid which was manually reduced and a firm polypoid mass palpated within the lumen of the bowel. The distal sigmoid that received the intussusception was thickened and dilated while the proximal bowel was relatively normal (Fig. 3). Resection of a segment of descending colon bearing the tumor mass was carried out and a primary end to side anastomosis performed. The patient's post-operative course was uncomplicated.

The resected bowel contained a firm, 7 x 4 cm., pedunculated, rounded mass that was ulcerated over its most distal portion and on section appeared to be composed of normal appearing fatty tissue covered by mucous membrane (Fig. 1). On microscopic examination the muscle of the bowel wall ended abruptly at the base of the lipoma and the muscularis mucosa continued over the surface of the polyp beneath the mucous membrane.

### Case No. 2

A 77 year old white female entered Maricopa County Hospital on November 23, 1953 complaining of a dull aching discomfort in the right lower quadrant, which occasionally radiated to the right upper quadrant, and was of approximately six months duration. There are accompanying nausea but no vomiting or melena. There was also no change in bowel habits, no weight

loss, and no abdominal distention. Physical examination was negative except for a nodular enlargement of the thyroid, a grade I apical systolic murmer, and a vague soft, non-tender mass palpable deep in the right iliac fossa. Laboratory examination revealed normal urinalysis and blood count. Serology was negative and NPN was 21 mgm.%. The EKG was normal and chest film showed pulmonary emphysema and a redundant aorta.

Barium enema demonstrated a smooth rounded filling defect about 6 cm. in diameter on the lateral-inferior aspect of the cecum (Fig. 2A). Proctoscopy was negative.

Laparotomy revealed a soft, fatty tumor occupying the lateral aspect of the cecum and measuring 7 x 4 x 4 cm. Although the tumor protruded in to the bowel lumen it was attached at a relatively broad base and was not truly pedunculated. There was no evidence of intussusception. On section the fatty tumor mass mass appeared to have arisen sub-serosally and compressed or displaced the muscular bowel wall leaving a thin layer of fibrous wall remaining beneath the muscularis mucosa. The tumor was microscopically a simple lipoma.

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### PANCREATIC DISEASES \*

By J. L. Sims, M.D. Madison, Wisconsin

THE pancreas presents to the physician problems which are as fascinating and yet frustrating as any to be encountered in medicine. It is almost as inaccessible to the techniques of the roentgenologist as to the palpating fingers of the bedside diagnostician, and in only a limited number of situations can the clinical laboratory add more than inferential evidence. Even the exploring surgeon hesitates to biopsy the organ for fear of creating a fistula potentially as serious as the original disease. It is perhaps the recurrent inability to obtain simply objective confirmation or denial of the presence of pancreatic disease which leads to what is probably the commonest cause of error in its evaluation - failure to give it serious consideration among the diagnostic alternatives. These are not the commonest of diseases, yet they occur with sufficient frequency to form a regular portion of the experience of every physician except those in the most limited of specialties. In spite of this and of their routinely seriously nature, it can hardly be termed a rarity when they are first thought of in the operating room or at the necropsy table.

Except for diabetes mellitus, which can hardly be defined as a pancreatic disease, the most important considerations in this field are acute and chronic inflammation and carcinoma. Time does not permit review of the interesting rarities of annular pancreas, mucoviscidosis, and functioning islet cell adenomas.

Mumps and perhaps scarlet fever may be associated with specific reactions. Accidental trauma and that incident to surgery, especially gastric resection, may occasionally cause an acute inflammatory reaction. In the latter instance, this may appear 24 to 48 hours after operation, and, confused with other potential surgical sequelae, progress rapidly, perhaps unrecognized, to a fatal termination. Penetrating peptic ulcer, local vascular disease, or adjacent inflammatory processes may at time extend to give secondary pancreatic change. The majority of instances of acute pancreatitis fall in none of these categories, and conjecture as to their cause revolves about biliary disease, the

called common channel theory, and pancreatic ductal obstruction. Pancreatitis is associated with abnormality of the gall bladder and bile ducts more frequently than would be dictated by mere chance. The belief that pancreatitis is initiated by reflux of bile, perhaps abnormal, through common terminal ductal channels into the pancreas has been criticized because of the occurence of acute pancreatitis in patients with neither biliary disease nor a communication between the pancreatic and bile ducts prior to their entry into the duodenum. Recently, it has been shown radiologically that contrast media injected into the gall bladder may appear in the pancreatic ducts in individuals in whom no continuity between the two duct systems can be demonstrated(1). Metaplasia and proliferation of ductal epithelium and impaction of a gall stone in a common ampulla are the two most commonly invoked factors in the obstructive theory. Occasionally carcinoma may present as acute pancreatitis secondary to ductal obstruction by the tumor.

Whatever the background, the manifestations of acute pancreatitis are primarily due to the activity of pancreatic enzymes which have penetrated beyond their normal confines. Either bile or tissue juice is capable of activating trypsinogen, which may then injure surrounding tissue. Acute pancreatic edema, hemorrhagic change, necrosis and gangrene are but progressive steps as tissues and their blood vessels are damaged by the spreading enzymes. Fat necrosis results from the action of pancreatic lipase. Adynamic ileus is the rule, and peritoneal fluid, often hemorrhagic, may accumu-Intestinal bacteria may penetrate into the abdominal cavity in response to this injury, adding infectious peritonitis to the problem, localized infection and abcess formation may occur, or the inflammatory exudate and pancreatic secretions may be walled off to give pseudo-cysts. At any stage, progress of the disease may be arrested, with ensuing regression, or there may be steady progression to

Chronic pancreatitis presents to the pathologist chiefly fibrosis, both inter- and intra-lobular, with some inflammatory cell infiltration, and

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Medical Portion of a Medical, Radiologic, and Surgical Symposium on Pancreatic Diseases.

varying degrees of parenchymal destruction. Calcification may be seen, either diffusely distributed, or in the form of intraductal concretions. Such chronic disease may progress insidiously with minimal clinical manifestation to the point of serious insufficiency of pancreatic function, or it may be characterized by periodic acute exacerbations, as so-called chronic relapsing pancreatitis.

The clinical picture of these exacerbations differs chiefly in degree from the more fulminant isolated episodes of acute pancreatitis. Indeed, while many patients who recover from an acute pancreatitis never have a recurrence, others progress through additional episodes to the typical pattern of chronic pancreatitis. Both the initial and subsequent attacks may be of widely varying severity.

The outstanding symptom is pain. Typically, this is epigastric, rather diffuse, and often extends to either the right or left upper quadrant. Radiation through to the upper lumbar and lower dorsal regions is common, and in some instances the pain may be felt only in the back. Less often, there may be discomfort elsewhere in the abdomen or in the arms or chest. In the more severe episodes, the pain is intense, and poorly masked by usual doses of narcotics. In the mildest exacerbations of chronic forms, there may be no more than a vague sense of uneasiness. Attacks frequently appear several hours after a heavy meal or a period of alcoholic excess. On other occasions the patient may be awakened after a few hours sleep. In the majority of cases, the more acute symptoms gradually subside after a course which varies widely in duration. There may then be complete freedom from difficulty until the next attack, if it is to occur. In chronic relapsing forms a continuing dyspeptic pattern is not infrequently present. A limited number of patients find that forward flexion of the trunk, either in the sitting position or while lying on the side gives a measure of relief. This pattern, if present, is strongly suggestive of pancreatic difficulty. Another small group with chronic disease will obtain relief of discomfort by ingestion of food, simulating the picture of peptic ulcer. A number of patients with subacute and chronic disease may have no pain at all.

Misquotation of Courvoisier's law has lead to a widespread misconception that carcinoma of the pancreas is apt to be painless. Regardless of location within the organ, the commonest symptom, and the commonest initial symptom, of pancreatic carcinoma is pain. It is experienced by the great majority of victims of this disease at some time in their course. The pain is generally quite similar to that experienced in subacute and chronic pancreatitis, though occasionally, particularly where the body and tail of the organ are involved, bizarre manifestations are seen.

A second important indication of pancreatic disease is jaundice. This will occur at some time in slightly more than two-thirds of patients with carcinoma of the organ, being considerably more common when the head of the gland is involved, and is the initial or presenting symptom in a much smaller group. In such cases it is usually due to obstruction of the common bile duct, although hepatic metastases account for other instances. In pancreatitis swelling of the organ may at times occlude the common duct, while in other patients cholangitis or actual hepatitis may be associated with the pancreatic disease.

A considerable and rapid loss of weight is characteristic of pancreatic neoplasm, and, when it occurs without other obvious explanation, should suggest this possibility. At a slower rate it is also typical of chronic pancreatic inflammation.

Abdominal distention, paralytic ileus, and constipation are frequent in acute pancreatic inflammation. In chronic pancreatic disease. bowel function varies widely, with diarrhea being not uncommon. With progressive destruction of the gland reduction of its external secretion may eventually result in a steatorrhea which closely mimics the sprue syndrome. In acute attacks marked anorexia and recurrent vomiting are usual; in chronic inflammation and carcinoma they are much less typical. Considerable tenderness and moderate rigidity in the epigastrium, or perhaps more diffuse, characterize acute pancreatitis and the more severe exacerbations of the chronic disease; they are much less prominent or absent in the latent periods of chronic pancreatitis and in carcinoma. Temperature elevations of one or two degrees parallel the acute inflammatory episodes; higher levels suggest possible abscess formation, gangrene, bacterial peritonitis or, in carcinoma, extensive hepatic metastases. Among the less common manifestations of acute stages

are tetany, due to depletion of the serum calcium as it forms soaps with the fatty acids freed by pancreatic lipase, and discoloration about the umbilicus or in the flanks, known respectively as Cullen's and Grey-Turner's signs, and attributed to extravasation of blood following hemorrhagic necrosis. Ascitic fluid may accumulate as a result of inflammatory reaction, in which case it is often hemorrhagic, and possessed of a high amylase content, from neoplastic implants on the peritoneal surfaces, usually with a serous character and the probability of a positive result on Papanicalaou study, or from portal occlusion by either carcinoma or inflammatory swelling, having, in this instance, no directive characteristics as a rule. A palpable mass is exceptional, and usually represents either pseudo-cyst formation or a liver involved by metastases when it is found. Carcinoma of the body and tail of the organ may present, in slightly less than one-third of such cases, the peculiar feature of one or more venous thromboses without other apparent cause. This finding, particularly if accompanied by unexplained weight loss, should always suggest the possibility of such a tumor. Similar thrombosis may occur in a much smaller proportion of neoplasms of the head of the pancreas or of other organs.

Of particular note is the frequency with which psychiatri , roblems accompany and at times mask pancreatic disease. Cases have been described in which the presenting manifestations of pancreatic carcinoma have been severe psychic disturbances(2). Alcoholism accompanies, and often precedes, pancreatitis in an appreciable number of instances. important is the common confusion of chronic pancreatitis with psychoneurosis. At times this reflects the tendency of a certain few physicians to assume that symptoms for which they are unable to demonstrate an anatomical basis must be of psychic origin. More commonly, the neurosis actually exists. It has been variously suggested that psychologic factors are of importance in the causation of pancreatic inflammation, that the patient's attitude merely reflects the anxiety of his physician when faced with inexplicable symptoms, or that this neurosis results from the frustration incident to the continuing failure of his physicians to find a cause for his very real suffering. Whatever the explanation, it is well to recall this association

and give strong consideration to the possibility of a pancreatic lesion in the neurotic patient whose symptoms are to any extent compatible with such a diagnosis.

In the preceding discussion no great distinction has been made between the manifestations of acute and chronic inflammation and of neoplasms of the pancreas. In large part, differences in their clinical patterns are a matter of degree and rate of progression rather than of fundamentally different mechanisms and, in any case, it seems more important to focus attention on the organ than to emphasize minutiae which distinguish its various afflictions.

Having suspected involvement of one or another organ, the physician usually seeks confirmation from radiologic study, the clinical laboratory, or surgical exploration. The classic indicator of pancreatic disease is the serum amylase level. Some hours after the onset of an episode of acute pancreatitis the concentration of this enzyme in serum usually rises to values five to fifteen times its normal peak of 150-180 Somogyi units, to decline slightly less rapidly as the attack subsides. In the exacerbations of chronic pancreatitis the increase is less regular and of lesser degree but still frequently quite helpful. In interim phases of chronic inflammatory disease, and in carcinoma, amylase elevations are seen in only a minority of patients, and are of limited degree. The lack of other adequate tests and the support gained in the few positives obtained probably justifies performance of the test in suspect cases.

Virtually the same statements might be made about the serum lipase study although the rate of rise and fall is often somewhat slower. Normal levels reach the equivalent of 1.0 to 1.5 c.c. of a 1/20 normal sodium hydroxide solution and in acute pancreatitis may be elevated to the range of from 6.0 to 12.0 cc. In chronic inflammatory or neoplastic disease, perhaps a slightly greater number of mild elevations is found than with the amylase test although these still represent only a minority of the patients with such difficulty. Abnormality of the two tests is not always parallel so performance of both may be desirable.

Even with distinctly elevated levels, neither reaction is pathognoomonic of primary pancreatic disease. Markedly reduced renal function, penetrating peptic ulcers, high intestinal obstruction, peritonitis, various acute abdominal crises, adrenal and hypophyseal disorders, mumps, and even pneumonia have been cited by various investigators as causes of increased serum levels of pancreatic enzymes. Usually such changes are of considerably less magnitude than those seen in acute pancreatitis(3).

Extensive destruction of the pancreas, either neoplastic or inflammatory, may result in a very low concentration of these enzymes in the serum. Such patients will not uncommonly present a steatorrheic picture which is differentiated from sprue only with difficulty. The gelatin digestion test of tryptic activity, utilizing a drop of feces placed on an x-ray film, is probably of value primarily in infants. In the adult, results are dependent on the bacterial flora of the intestine to a cońsiderably greater extent than on pancreatic function.

Study of the enzymatic activity of the pancreatic secretion obtained by duodenal aspiration has been employed by many, but the considerable functional reserve of the pancreas limits the number of instances in which there is significant reduction in such activity, either a severe destructive process or major ductal obstruction being necessary to give conclusive This, plus the increased work and technical skill needed in their performance, has limited the use of such examinations. Possibly worthwhile in this connection, however, is the cytologic study of the duodenal aspirate. A rather high recovery rate of malignant cells by this method has been reported in patients with pancreatic tumors(4).

Of more value than is usually realized is the glucose tolerance test. In both chronic pancreatitis and carcinoma of the pancreas, almost half of the patients will show departure from the usual normal curve although the number who are frankly diabetic is considerably smaller. The flat oral tolerance curve of sprue, Whipple's disease and other intestinal absorptive defects is often useful in differentiation of the steatorrhea of these disorders from that of terminal pancreatic insufficiency.

Demonstration of a low serum calcium may occasionally offer some help in the diagnosis of acute pancreatitis with widespread fat necrosis. Hepatic function tests are at times of support in differentiation of jaundice due to pancreatic disease from that occuring in hepatitis, but it must be remembered that a mild hepatitis or cholangitis accompanies a certain

number of instances of pancreatitis and may give confusing results. Gelatin and starch tolerance tests somewhat similar in principle to the oral glucose tolerance test, but additionally dependent on tryptic or amylolytic activity, have been devised, but are subject to the same considerations of pancreatic reserve applicable to direct study of the duodenal aspirate. From a negative standpoint, it should be noted that electrocardiographic changes somewhat similar to those of mycardial infarction may at times be associated with acute pancreatic disease.

In a suspect case, a diagnostic support may be sought in any and all of these laboratory resources without success. Far from excluding pancreatic disease, such failure only emphasizes the need of a careful, searching history, not only as it may indicate pancreatic difficulty, but as it brings into proper focus the possibilities of psychoneurosis and disease of other viscera. Radiologic and laboratory studies directed toward this latter end are also of major usefulness.

In the absence of definitive curative measures, treatment becomes in large part a matter of correcting so far as possible resulting anatomic and functional disturbances, and of relieving symptoms pertinent to involvement of the gland as such, rather than attack upon any specific etiologic or pathologic entity.

Usually, of paramount importance is the relief of pain. Despite theoretical consideration of their effect in producing spasm of the sphincter mechanism, and hence possible aggravation of pancreatitis, narcotics are usually effective. In the chronic and recurrent forms of pancreatitis addiction becomes a danger and actually occurs with some frequency. As an adjunct to narcotics, or as a substitute for them in milder attacks, attempts to block the sensory pathways from the pancreas may be of value. Tetra-ethyl ammonium chloride or procaine administered intravenously give assistance in this direction at times. More specific and persistent, although technically more difficult, is the direct injection of splanchnic pathways with procaine. Where this is successful, the surgeon may be called upon in chronic cases to attempt more permanent relief by splanchnicectomy, sympathectomy, vagotomy or a combination of these.

The second point of attack is upon the secretory mechanisms of the pancreas. The humoral

phase of this secretion is largely intiated by the appearance of gastric acid and food in the duo-denum with the consequent release of secretin into the blood. Food is, therefore, withheld and continuous aspiration of gastric content maintained during acute exacerbations. Such aspiration also serves to minimize two of the more distressing symptoms, vomiting and abdominal distention. To lessen neurogenic contributions to pancreatic secretory activity, large doses of anticholinergic agents, such as atropine or banthine are in order. These have again additional value in also lessening gastric secretion and in reducing the tendency to vomit.

While bacterial infection is of little importance in the production of pancreatitis, the possibility of peritoneal invasion by intestinal bacteria as a result of the inflammatory increase in permeability of the tissues is a real hazard. On this basis there is probably a place for the use of antibiotics effective against these organisms in the management of acute pancreatic inflammation.

Shock developing in acute pancreatitis may be benefitted by plasma infusions on occasion. Reduction in the mortality rate in acute pancreatitis following large daily infusions of human serum albumin, possibly related to its antitryptic activity, has been reported(5). There has been report of improvement following cortisone in an extremely ill patient with pancreatitis(6). At times an acute diabetes may develop and requires treatment. Dehydration and electrolyte imbalance are frequent, especially if gastric aspiration is being utilized, and it may be necessary to administer parenteral water, sodium chloride, potassium, and perhaps calcium. Where biliary obstruction is present, hypoprothrombinemia may indicate use of vitamin K. Ascitic accumulations, persistent obstructive jaundice, or formation of pseudo-cysts or abscesses may require surgical intervention.

Interim medical management in recurrent inflammation is largely directed toward maintaining nutrition and minimizing the probability of exacerbation. Large meals should be avoid-

ed, and relatively bland foods are desirable. With insufficiency of the external secretion, the diet should be low in fat. Bile sales, emulsifying agents such as "Tween 80", or pancreatin in doses of several grams with each meal may be tried in the hope of lessening steatorrhea, but are often ineffective. Amino-acid digests may aid in supplying protein needs, in lieu of trypdigestion. Theoretically, anticholinergic drugs are undesirable, as suppressing an already inadequate external secretion, but at times they may be of value in decreasing flatulence and excessive intestinal motility. Alcohol should be forbidden. Diabetes, if present, should be controlled. Any co-existing biliary tract disease should be corrected.

If in spite of these measures, recurrent attacks of pain continue, relief may be sought through one of several surgical procedures directed toward improving pancreatic drainage, lessening secretion, or blocking pain pathways. In carcinoma, the only measures available to us are analgesia, palliative surgical measures to relieve pain and jaundice and, very rarely, attempts to remove the neoplasm by means of pancreatectomy.

In summary, failure to give pancreatic disease major consideration among available diagnostic alternatives is probably the greatest single obstacle to diagnosis in this field. Where the possibility is entertained, positve help from the laboratory may be obtained in some cases, and may be definitive, but more commonly dependence must be placed upon a careful historical evaluation. Therapeutic measures are limited and inadequate, but early recognition and bold treatment offer considerably greater opportunity for palliation and perhaps cure than is the case when diagnostic hesitancy and therapeutic caution require far advanced and obvious disease before attempts are made to intervene.

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# THE POSSIBLE ROLE OF THE VERTEBRAL ARTERY IN AMYOTROPHIC LATERAL SCLEROSIS

A Preliminary Report With Case Study Otto L. Bendheim, M.D.\* Phoenix, Arizona

MULTIPLE sclerosis, amyotrophic lateral sclerosis, progressive muscular atrophy and a large number of so-called "degenerative" central nervous system diseases have remained etiologically obscure and therapeutically inaccessible.

The prevailing theories which include infection, endocrine disturbances, thrombotic and vasospastic phenomena, metabolic and toxic factors, etc., have remained totally speculative.

In the case of amyotrophic lateral sclerosis, a few outstanding clinical features are observed. These include the following:

 The disease usually occurs in males above the age of forty-five.

There is usually some degree of "cervical arthritis" or at least hypertrophic changes of the cervical spine.

 The onset is frequently unilateral, affecting at first one of the upper extremities, except where bulbar involvement produces the first symptoms.

4) The pathological changes within the CNS are mainly confined to the medulla oblongata and the upper cervical cord. The peculiar combination of upper and lower motor neuron involvement producing muscular wasting, fasciculations, and pyramidal signs, can be totally explained on the basis of involvement of the cervical cord and medulla. The changes in the lower extremities are usually much more spastic-pyramidal, while in the upper extremities the changes are more those of a lower motor neuron lesion with marked atrophy and fasciculations.

In reviewing these well-known clinical facts, it became apparent that in contrast to some of the other "degenerative" CNS diseases, amyotrophic lateral sclerosis can be explained by a lesion confined to a relatively small area in the medulla and cervical cord. In trying to correlate the pathological changes within the CNS and those observed in the cervical spine, the idea presented itself that the most important structure which is intimately associated with both of these regions, namely the vertebral artery, has not been previously studied in relation to amyotrophic lateral sclerosis.

The vertebral artery, as no other artery in the human body, has to traverse six relatively small foramina, the foramina transversaria in the cervical vertebrae, in order to reach its goal within the cranium. It was logical to assume that in certain cases of hypertrophic osteosis of the cervical spine these foramina could become involved, producing an embarrassment of the blood flow within this artery.

It was felt that if there were compression or embarrassment of this artery which carries the sole blood supply for the medulla and upper cervical cord, lesions similar to those seen in amyotrophic lateral sclerosis could well be produced.

With these ideas in mind, the following study was undertaken.

### Case Report

J. A. G., white business executive, age 59, was referred to us on August 31, 1954, for terminal care.

The patient had been in good health until February, 1954, when he noticed hoarseness and a "rough area" at the base of his throat. Studies in San Francisco in March, 1954, including spinal fluid examination, were normal. Within fairly rapid sequence atrophy and weakness of the right arm and hand became apparent. Fasciculations in both arms occurred, and the speech became worse. There was regurgitation of liquids and drooling of saliva. He went steadily down hill with marked fatigue and increasing weakness. There was no complaint of pain or disturbances of sphincter functions. Neurological examination performed by the referring physician in June, 1954, revealed excellent physical condition except for the wasting CNS illness. The tongue was fibrillating; speech and swallowing were difficult; and there were pyramidal tract signs of Babinski on the right, atrophy about the shoulder girdle on the right, and atrophy of the small muscles of the hand with fibrillations. Abdominal reflexes were absent. The patient was unable to maintain the right upper extremity in the horizontal position. There were no sensory disturbances.

In Phoenix the course was steadily down hill,

<sup>\*</sup>From the Phoenix Institute of Neurology & Psychiatry. The author wishes to express his appreciation of the invaluable assistance rendered by Doctors Marcy L. Sussman. Thornton E. Pfeil, and John A. Eisenbeiss in the preparation of this study.

and the patient insisted on going to a midwestern clinic where he was examined on October 15, 1954. In addition of the neurological findings described above, electromyographic changes indicating widespread denervation and fasciculation were observed, compatible with amyotrophic lateral sclerosis. Biopsy specimen from the left biceps revealed non-inflammatory changes and numerous atrophic fibers as seen in amyotrophic lateral sclerosis. Roentgenograms of the skull were negative; those of the chest showed torsion of the aorta; those of the spine showed minimal hypertrophic changes in the cervical region. Sedimentation rate was 31 mm per hour; the blood count was normal. The spinal fluid was normal, including its dynamics. The diagnosis of amyotrophic lateral sclerosis was confirmed.

Late in October, 1954, the patient returned to Phoenix where he appeared much worse. His speech had become almost unintelligible, and he soon developed very serious difficulties in swallowing of solid foods, beginning to subsist more and more on liquids. The right upper extremity had become almost entirely useless, and the left upper extremity was much weakened. The gait was still fairly good.

On November 19, 1954, the patient was referred to a radiologist for radiological examination of the cervical spine with the specific question of any possible encroachment of the vertebral arteries. The examination showed considerable hypertrophic changes, especially about the articulations of the 3rd and 4th vertebrae, much more marked on the right. The foramina transversaria could not be outlined, but it was suggested that there was a possibility of narrowing with possible compression of the vertebral artery. (Figures I and II.)

On November 27th, the patient was referred to a neuro-surgeon for right vertebral arteriography. The results of the arteriogram are demonstrated in figure No. III, showing a complete loop formation of the artery at the area of the most marked hypertrophic changes near the 3rd vertebra.

### Comment

The demonstration of unusual and heretofore unreported pathological changes within the vertebral artery in a case of amyotrophic lateral sclerosis raises the important question whether the blood flow within this artery could be sufficiently impaired to produce the pathological



Fig. I. Cervical spine, right oblique view.



Fig. II. Cervical spine, left oblique view.

Hypertrophic changes are seen about the posterior articulation of the 3rd and 4th cervical vertebrae, much more marked or the right.

changes in the central nervous system.

The loop formation, whether of a congenital nature, or reactive due to embarrassment of the



Fig. III. Right vertebral arteriogram, showing complete loop formation at the site of the greatest hypertrophic bone formation.

artery within the foramen transversarium, could certainly be an impediment to proper circulation. It is possible, although of course not certain without further confirmation, that the proliferative bone changes fixed the pulsating artery within the foramen transversarium of the 3rd cervical vertebra, thus producing a recoil phenomenon, very much like a garden hose with running water which recoils on encroachment of its lumen.

The loop is in such a location that movement of the cervical spine could very well produce a "kink" and thus interrupt the blood flow temporarily. It is also possible that the blood pressure above the loop is considerably lower than below the loop because of eddy currents in the arterial channel.

Further studies are necessary to explain the nature of this peculiar behavior of the vertebral artery and its relation to amyotrophic lateral sclerosis. Surgical correction of this lesion of the vertebral artery is now contemplated and will be reported later. It is hoped that this report will stimulate research to confirm or disprove this theory.

### THE ARIZONA FELLOWS OF THE AMERICAN COLLEGE OF SURGEONS

The College is holding its first Sectional Meeting of the coming year at Galveston on January 17, 18 and 19, 1955. An exceptionally attractive program has been planned, and a copy will be mailed to you well in advance of the meeting.

The six Texas Chapters of the College, representing more than 900 Fellows residing in Texas, extend a cordial welcome to the surgeons living elsewhere throughout the Southwest. The hotel and recreational facilities of Galveston assure you a pleasant time as well as one which will be profitable scientifically.

The "Island City" is the home of the large Medical Branch of the University of Texas, established in the early 90's. Its beautiful new John Sealy Hospital provides unusual facilities for the clinics which form a part of the College program. Just as Texans always think of a meeting in Galveston as one where old friends can get together, this coming Sectional Meeting offers surgeons of the entire area the opportunity to enjoy an excellent surgical program in an atmosphere of recreation and relaxation.

We urge you to attend:

A. E. WINSETT, President Northwest Texas Chapter

HENRY N. RICCI, President Second District of Texas Chapter

HOWARD O. SMITH, President Third District of Texas Chapter R. T. TRAVIS, President Fourth District of Texas Chapter

JOHN A. HART, President Fifth District of Texas Chapter

FELIX P. MILLER, President Sixth District of Texas Chapter

ROBERT M. MOORE, Chairman Committee on Arrangements

Note: Surgeons who are not Fellows of the College may also attend these sessions (Registration fee - \$5.00).

### PENTOTHAL SODIUM ANESTHESIA: A PHANTASY

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WITH the introduction of pentothal sodium to the anesthesiologist arnamentarium by Lundy in 1934 its use has been advocated as the drug or anesthetic of choice for every surgical procedure requiring a general anesthetic.

By definition anesthetics are agents which (1) produce unconsciousness, (2) they are analgesic and (3) inhibit reflex activity. The barbiturates, to which class of compounds pentothal sodium rightly belongs, therefore, are not true anesthetic agents.

The barbiturates are hypnotics in that they will produce unconsciouness. They do not allay pain but may even in the presence of pain produce delirium. The barbiturates will readily produce unconsciousness which is desirable for the patient, surgeon, and anesthesiologist. It is for this simple fact that many patients request and surgeons demand an induction with pentothal sodium. This rapidity in induction frequently is a "snare and a delusion" hazardous for the patient, which is attested to by reviewing mortality reports. Pentothal sodium. while meeting one of the basic requirements of an anesthetic, falls far short of meeting the other two basic requirements, namely, providing relaxation and inhibiting reflex irritabillity.

That pentothal sodium is not an analgesic nor a relaxant is readily demonstrated during anesthesia. Anesthesia may be apparently satisfactory until a painful stimulus occurs causing the patient to move. Muscular relaxation may be accomplished with pentothal sodium but this requires the administration of large quantities of the agent far in excess of the limits of safety. Reflex activity and irritability may actually be enhanced in the presence of pentothal sodium anesthesia. This may be seen frequently in operations upon the neck when pentothal sodium has been the agent requested by either the surgeon or patient.

Pentothal sodium is a central nervous system depressant acting upon the coretx and respiratory center. It will produce psychic sedation, sleep and deep hypnosis. The re-

sponses of the patient will vary with the dose, rate of administration, absorption, destruction, elimination, and susceptibility of the patient.

Intravenous pentothal sodium anesthesia is unique in several respects which invite abuse. The ease with which it is administered is a distinct advantage, but this may also become a serious pitfall. It is a temptation to select the agent for its convenience rather than on the basis of what is best for the patient. It is equally tempting for the surgeon and anesthetist to be swayed by the desires of the patient who has heard of the "new wonder drug" or "shot in the arm" and request the same.

With unconsciousness produced in a matter of seconds, following the administration of intravenous pentothal sodium, it is often very tempting for the surgeon to operate before the patient is anesthetized. The painful stimulus evokes a reflex response on the part of the pations so that he moves. This is usually interpreted as light anesthesia. The administration of more pentothal sodium is recommended, which leads to overdosage.

Overdosage occurs for several reasons: (1) Rapid induction together with impatience for the drug to attain its full effects. The time required for a given dose of pentothal sodium to reach its maximum effect is more than one minute and not fifteen to twenty seconds. (2) The arbitary administration of so many cc., per so often rather than the patient's response to the drug. (3) The administration at a fixed concentration rather than adjusting the concentration to the patient. A 2.5 per cent solution is satisfactory for the normal healthy person, but in the cachetic, ill and debilitated individual leads to overdosage. (4) The indiscriminate administration of more pentothal sodium whenever the patient moves. Movements of the patient do not indicate light anesthesia. depth of respiration should be the guide for administering more pentothal sodium. pentothal sodium the respirations are regular, but decreased in rate and amplitude. Since pentothal sodium depresses the respiratory center, the principal respiratory regulatory drive

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Read before the Sixty Third Annual Convention of the Arizona Medical Association, at Chandler, Ariz., April 25-28, 1954.

is through the carotid sinus mediated by hypoxia.

The treatment of overdosage is supportive management. No patient need die from overdosage if adequate facilities are available for maintaining pulmonary ventilation. This implies the use of a gas machine or a breathing bag and oxygen attachment. One should not administer pentothal sodium without such equipment available and ready to use. The analeptics have no place in the symptomatic treatment of overdosage. The respiratory depressant effects of pentothal sodium are transient and if oxygen therapy is instituted immediately the patient will respond without the use of analeptics.

The complication most publicized as occurring during pentothal sodium administration is laryngospasm. Laryngospasm is a manifestation of an active reflex pathway that continues to function during pentothal sodium hypnosis. Laryngospasm can be precipitated by any painful stimulus originating in any part of the body. More specifically, maneuvers such as rectal dilatation, urethral dilatation, and stretching of the mesentery will cause spasm of the cords. The insertion of a pharyngeal airway may also be the precipitating factor responsible for the development of laryngospasm. Equally responsible is the presence of moderate amounts of mucus or saliva in the pharyngeal passage.

Laryngospasm is more easily prevented than treated. It is easy enough to avoid laryngospasm if the anesthetist is alert. Laryngospasm may be avoided if five to ten minutes are allowed to elapse from the time of induction to beginning of surgery. Furthermore, since laryngospasm is considered to be a manifestation of increased vagal activity the administration of atropine sulphate 0.8 mg. (gr. 1-75) is recommended for preoperative medication. Since painful reflex stimuli will precipitate laryngospasm, pentothal sodium should not be used whenever potent reflexes are to be initiated or stimulated.

The unexpected onset of laryngospasm should be treated immediately by removing the causative stimulus when possible. If persistent, positive pressure oxygen, or helium-oxygen mixtures should be administered by the facemask. The insertion of an endotracheal tube may be indicated if the spasm persists. If one is thoroughly conversant with the pharmacological action of succinylcholine (anectine®) chloride it may also be used with beneficial results. Intratracheal administration of two cc. of a four per cent solution of cocaine has also been found effective in abolishing a persistent larvngospasm.

A frequent complication following pentothal administration is apnea. Apnea is an indication of negligence and results from the rapid administration of a concentrated solution of pentothal Isodium. Since it is impossible to estimate accurately how each patient will react to a given dosage the anesthetist should always anticipate apnea and be prepared to treat it with artificial ventilation. It need be reemphasized that an efficient means for performing artificial ventilation with oxygen must be immediately available whenever or whereever intravenous pentothal sodium anesthesia is used.

A complication which is frequently overlooked is that of bronchoconstriction or bronchospasm. This is due to the parasympathetic action of the drug. Inability to expand the chest with positive pressure should cause the anesthetist to suspect this condition. Treatment consists in discontinuance of the agent and administration of either atropine sulphate or aminophylline.

The direct effects of pentothal sodium upon the cardiovascular system are not as great those upon the respiratory system. Arrhythmias may occur under pentothal sodium but these are usually secondary to the hypoxia caused by the respiratory depression. The pulse rate may be slightly increased but this is of no significance. Upon the heart itself pentothal sodium has no deleterious effects. Experimentally, however, it has been shown that patients' who are decompensated or receiving digitalis therapy respond poorly. The toxic dose of pentothal sodium is appreciably increased in animals who have received digitalis. Clinically this has not been confirmed.

The most frequent cardiovascular complication following pentothal sodium anesthesia is hypotension. Pentothal sodium being a medullary depressant one would expect cardiovascular collapse to occur. The blood pressure, however, is only slightly affected when pentothal sodium is given slowly to the normotensive individual. Rapid administration will cause a precipitous drop in the blood pressure and this is quite evident in patients with hypertension. Pentothal sodium, therefore, should be used cautiously in a weak solution and given very slolwly to the hypertensive patient.

It need be mentioned here that pentothal sodium is definitely contraindicated in the presence of shock or hemorrhage. Patients undergoing surgery with pentothal sodium who develop shock or hemorrhage respond poorly to blood replacement therapy. The causative factor is unknown but is thought to be due to a peripheral vasodilation which occurs normally under pentothal sodium. Therefore, pentothal sodium should not be considered when excessive bleeding or shock is anticipated.

During induction of anesthesia with pentothal sodium the apprehensive and alcoholic patient may exhibit signs of delirium. Delirium may be interpreted as an excitement stage equivalent to that seen with ether anesthesia or more specifically second stage analglesia. This complication may be alleviated if a supplemental agent such as nitrous oxide is used. Postoperative delirium is occasionally seen and may be treated with a subemetic intravenous injection of apomorphine 0.4 mg. to 0.6 mg. This should be injected slowly over a period of five minutes. The patient will awaken from the sleep which follows quietly, without fear, excitement or apprehension.

Emesis is not commonly seen during induction when the gastrointestinal tract has been properly prepared for surgery. Postoperative nausea is seldom remembered because it usually occurs during the period of amnesia that follows awakening from pentothal sodium anesthesia. Nausea and emesis, however, will frequently be delayed for six to eight hours after the patient awakens and usually after the first light meal.

Several uncommon complications may occur due to errors in technique of venipuncture. An artery may be mistaken for a vein resulting in an intra-arterial injection. Spasm of the peripheral arteries ensues with blanching of the extremity together with severe pain. The injection must be discontinued at once; but intravenous anesthesia can be continued if the operative procedure cannot be postponed. If intra-arterial injection has occurred a stellate ganglion block must be done immediately to alleviate the vasospasm. Extravascular injection may also occur which is usually irritating

to the tissue and slough may follow. The degree of tissue damage is dependent upon the concentration of the solution used. If such an accident occurs, normal saline should be immediately injected into the same area to dilute the pentothal sodium in an effort to reduce the possibility of tissue slough.

There are as many abuses of pentothal sodium as there are persons administering the agent. It should not be inferred that all persons abuse the agent, but the intravenous anesthetics readily lend themselves to several common abuses. The characteristic that leads to the greatest abuse is the ease with which it can be administered. Little skill is required to insert a needle into a vein and push a plunger on a syringe.

Since a minimum of equipment is necessary it becomes a great temptation to use the intravenous agents as the sole anesthetic. Since pentothal sodium is primarily a hypnotic and does not obtund reflexes nor produce muscular relaxation without profound medullary depression, it is not recommended for operation requiring relaxation.

Also of great concern to the anesthesiologist is the personal preference of the patient for pentothal sodium. This preference poses a special problem. Pentothal sodium has gained a great deal of publicity as the most pleasant of all anesthetics which in most respects is true. Patients fear the sight and smell of the operating room and dread the induction by inhalation anesthesia. With pentothal sodium, the fear of induction is minimized for unconsciousness comes on rapidly.

Patients many times insist upon an intravenous anesthetic without realizing the dangers involved. If the anesthetist is skilled, this may be of little significance, but if his experience is limited, he may be confronted with a request for a procedure with which he is not thoroughly familiar. He may be poorly equipped to deal with emergencies which may arise during such a procedure. The anesthetist should select the agent and method with which he is most familiar.

Surgeons often prefer an induction that is rapid and without delay. When pentothal sodium is used there is little waiting for the patient to be put to sleep. The operation can begin within several minutes after anesthesia is started. This rapidity of induction is the basis for another common abuse, an induction that is

far more rapid than necessary and much too rapid for the absolue safety and welfare of the patient. Induction with pentothal sodium should be slow and cautiously.

Following the initial injection of pentothal the cerebral blood concentration is quite high resulting in unconsciousness. A rapid fall in the blood level of pentothal sodium occurs, if additional amounts of the drug are 'not given the patient returns to consciousness. tothal sodium is removed from the circulation by the tissues of the body and is fairly evenly distributed throughout all the tissue, but ultimately accumulates in the body fat. pentothal sodium is discontinued, the fat gives up the drug, returning it to the blood stream at a rate approximately governed by the rate of its removal from the blood by detoxification. If repeated injections of pentothal sodium are given, the body fat becomes saturated, then the only mechanism known to lower the blood level is detoxification which proceeds at a rate of approximately fifteen per cent per hour. Pentothal sodium then assumes the properties of a long acting barbiturate resulting in a prolonged and unnecessary postoperative depression. The use of pentothal sodium as the sole anesthetic agent in the obse patient is, therefore, contraindicated.

No rule can be laid down which will be a perfect guide in the selection of an anesthetic, but the alert anesthesiologist will concern himself with several factors before deciding upon what anesthetic agent is best in any given case.

(1) The Patient: Of prime importance is the patient himself. The anesthesiologist must familiarize himself with the physical status of the patient. All physical defects or disease entities should be noted. The circulatory system is of particular importance together with some idea of the patient's ability to withstand circulatory stress. The status of the respiratory system is of equal importance. The role of the liver is probably not so important as was once believed. but the anesthesiologist must take liver damage into account. It has been reported that pentothal sodium does not further damage a diseased liver nor is detoxification unduly delayed. has been shown that the post anesthetic depression following pentothal sodium is increased if the blood non-protein nitrogen is elevated.

(2) The Problem: The problem involves largely the surgical diagnosis. This may have

little bearing on the choice of an agent, but special techniques may be required depending upon the site of operation and the position of the patient on the table.

(3) The Procedure: No anesthetic should be selected on the basis of the procedure along. In similar procedures, requirements for anesthesia may be parallel, but patients differ in respect to physical conditions and, therefore, to tolerance of drugs and depressant effects.

The estimated time required for the operation must also be considered. If several hours will be required for the operation, it is advantageous to use supplemental agents, relying upon pentothal to accomplish no more than a pleasant induction for the patient.

Based, therefore, on the patient, the problem and the procedure, the anesthesiologist may choose that agent and technique he feels best qualified to manage.

It might be well to interject a word concerning the use of pentothal sodium in the extremes of age. There are many reports in the literature indicating that age of itself is no contraindication to the use of thiopental. This, in a sense, is true; however, the physician, in his own wisdom, must exercise a self imposed restraint commensurate with his experience that only he himself can determine. It is probably less important to emphasize age limits at both ends of the scale than it is dosage and technique of administration.

In the infant and young child, the basal metabolic rate is much higher than in the adult. The dosage required on a per kilogram basis is higher. This means that oxygen requirements are higher in children and hypoxia is not well tolerated. Certainly when used for children. the gas machine designed for the adult must be adapted to the smaller vital capacity of the child and the dead air space reduced. The hazards and limitations of the intravenous administration of any substance is increased by the smallness of veins and the lack of cooperation in children. Smaller doses of dilute solutions make it easier to control the intravenous administration of a drug. The same precautions must be observed with children as with adults and appea must be treated immediately with artificial ventilation and oxygen.

The aged patient requires a smaller dose because of a reduced metabolic rate. It is difficult to determine the degree of reserve strength present in any given individual and age must not be disregarded. Elderly patients are but shells of formerly healthy persons who may have little or no reserve.

There are a few abuses with pentothal sodium that fortunately seldom occur, but deserve mention. Since pentothal sodium should be used only to produce unconsciousness, it must be used with caution in the unconscious patient. This may appear obvious on the surface, but if pentothal sodium is used to control the movement of an unconscious patient on the operating table, it may do so at the risk of producing further depression of the central nervous sys-

tem. Adriani points out that the respiratory center is not only depressed, but that it also becomes less sensitive to the stimulating effect of carbon dioxide.

The contraindications for the use of thiopental are relative. It is of interest to note that as experience widens and skills increase, the list of contraindications becomes smaller and smaller. Certain safeguards, however, must always be kept in mind. There is no intrinsic safety factor built into any anesthetic. Skill is the greatest asset available to the person administering a potent depressant such as pentothal sodium.

# PHOENIX Clinical CLUB

The Case History in this discussion is selected from the Case Records of the Massachusetts General Hospital, and reprinted from the New England Journal of Medicine. The discussant under Differential Diagnosis is a member of the staff of the Massachusetts General Hospital. The other discussants are members of the Phoenix Clinical Club.

### MASSACHUSETTS GENERAL HOSPITAL PRESENTATION OF CASE

A Sixty-four-year-old man was admitted to the hospital because of inability to talk.

He was seen in the Out Patient Department three weeks before entry because of stiffness of the arms and legs and some difficulty in speaking. One week later, when he returned to the Out Patient Department, the following physical findings were noted: a right-facial nerve weakness, dragging of the right foot, increased tendon reflexes on the right with a right Hoffman reflex, equal hand grips and a blood pressure of 160 systolic, 90 diastolic. He improved somewhat, remained ambulatory, and had no difficulty other than the dragging of the right foot. Three hours before admission he suddenly pointed to his throat and made mumbling sounds, but was unable to form words; he also had some clumsiness when he attempted to put on his clothes to come to the hospital.

Physical examination revealed on obese, aphasic man. The fundi and ocular movements were normal. There was a questionable left hemian-

opia. There were paralysis of the right lower facial nerve, spasticity of the right arm with partial paralysis and a Hoffman reflex, and paresis and spasticity of the right leg; there was plantar extension on the right. Increased anteroposterior diameter of the chest with scattered coarse rales at both bases, more marked on the right, was noted. The remainder of the examination was noncontributory.

The temperature was 100°F., the pulse 108, and the respirations 22. The blood pressure was 140 systolic, 70 diastolic.

Urinalysis was negative. Examination of the blood showed a white-cell count of 10,800, with 88 per cent neutrophils, and a hemoglobin of 18 gm. per 100 cc. The nonprotein nitrogen was 30 mg. per 100 cc. A blood Wassermann test was Lumbar puncture revealed clear negative. spinal fluid under a pressure equivalent to 130 mm. of water, with normal dynamics; the fluid did not contain any cells. A roentgenogram of the chest showed the heart to be at the upper limits of normal in size, with some prominence of the left ventricle. The aorta was elongated and tortuous. The lungs were emphysematous. An electrocardiogram revealed a sinus tachycardia of 130, a PR interval of 0.16 second, a QRS interval of 0.07 second, normal voltage and axis with tendency to right-axis deviation and some clockwise rotation. There were low P waves in Leads 2 and 3 and low T waves in Lead 3.

On the day of admission the patient had a generalized convulsion. A lumbar puncture at this time revealed a clear spinal fluid under a pressure equivalent to more than 100 mm. of ater. The fluid contained 4100 cells per cubic millimeter; of these, 2300 were white cells, 95 per cent of which were neutrophils, and the protein was 430 mg. and the sugar 139 mg. per 100 cc. No organisms were seen on a gramstained smear.

Between episodes of increased spasticity and forced grasping of both hands the patient had bouts of extensor rigidity. A bilateral plantar extensor response developed. On the second day burr holes were made, with evacuation of a subcortical clot in the left temporal lobe. At operation there was normal pressure in the right ventricle; fluid from the ventricle contained 3200 cells per cubic millimeter, of which the majority were red cells, and 10 were neutrophils. Postoperatively he continued to have intermittent extensor fits, with a temperature spiking to 105°F., pulse of 140 and respirations of 50. Lumbar puncture seven hours postoperatively revealed a low spinal-fluid pressure, with turbid xanthochromic fluid that gave a 4 plus Pandy reaction; the fluid contained 2300 cells per cubic millimeter (92 white cells, 95 per cent of which were neutrophils. Postoperatively, the respirations were regular and deep at a rate varying between 20 and 30 per minute, with occasional bouts of Cheyne-Stokes respiration. The neck was not stiff. The eye movements were not abnormal except for an occasional side-to-side conjugate movement. The pupils were equal in size and reacted to light. The corneal reflexes were intact. There was no rigidity of any extremity and no response to pinprick. Deep tendon reflexes were present and equal on both sides except for slight accentuation of the right knee jerk. The plantar reflex was flexor on the left and extensor on the right. The patient continued in coma with hyperthermia and died on the third hospital (first postoperative) day.

### DR. HOWARD LAWRENCE:

It seems probable that this patient had either some vascular disease of the brain or a neoplasm. Were this not a clinical club case, but just Mr. Average Patient, I would favor the former, i.e., cerebral vascular accident, but all things considered, we best not give this patient an average diagnosis.

Let us first briefly discuss various vascular diseases. There is no history of trauma to support a diagnosis of either extradural or subdural hemorrhage, then too, the clot which was evacuated was subcortical in location. This clinical picture isn't one of subarachnoid hemorrhage for the onset was too gradual and the initial spinal fluid was free of cells. The diagnosis of cerebral aneurysm seems unlikely. The initial symptomatology three weeks before admission did not include head or eye pain, commonly seen in cases of unruptured aneurysm. If the initial convulsive seizure on the day of admission had been the evidence of a ruptured aneurysm then there would have been blood in the spinal fluid.

The cerebral pathology could have been initiated by an embolus. The lungs or heart are the most common sources of emboli. The chest x-ray does not incriminate the lungs. The EKG findings suggest right heart strain but no positive evidences that valvular vegetations were present as sources of emboli.

The differential diagnosis of cerebral hemorrhage vs. cerebral thrombosis warrants our attention. I quote Alpers - "Softenings which occur as the result of arteriosclerosis are among the most commonly encountered lesions of the brain. Thrombotic softening is much more frequently the cause of the cerebral insults of old age than hemorrhage. The ratio has been variously computed but it is safe to place it at 3 to 1. In other words, 75 per cent of the cerebral insults due to arterial disease are due to cerebral thrombosis and only 25 per cent to cerebral hemorrhage." Characteristically, the onset of a cerebral hemorrhage is much more dramatic than the clinical picture given in the protocol. This patient's troubles could very well be explained by the following sequence of pathological events: (1) Thrombosis of the more distal branches of the left middle cerebral artery with resultant right facial weakness, dragging of the right foot, (2) Bleeding into the area of softening occasioned by the thrombosis, evidenced clinically by the initial convulsion. (3) Progression of the encephalomalacia with extension into the ventricle, evidenced clinically by extensor fits, hyperthermia, and death.

But, as I said at the outset, I do not believe we can safely let this patient die with an average clinical story. Several other diagnoses could be considered.

The 18 gm. of hemoglobin is certainly abnormally high. The red blood count was not reported. Polycythemia rubra vera is a disease

suggested by this high hemoglobin report. Cerebral hemorrhages are not uncommon in this disease, (also, thrombosis of the longitudinal sinus with motor paralysis is a possibility). Yet, one would expect a prolonged history suggestive of the disease, and splenic enlargement would most certainly be found. Perhaps the high hemoglobin is best explained on the basis of the pulmonary emphysema.

Gliomas are the most common neoplasms found in this age group. Glioblastoma multiforme is the most common of the gliomas. I quote from Nielsen's textbook of clinical neurology, "It is a highly malignant growth occurring in the cerebrum (rarely in the cerebellum) of adults. It arises deep in the brain, at times in the basal ganglia, and is rarely removable . . . Bailey stresses the point that the hemorrhage and thrombosis occurring within the tumor mass furnish the most striking exceptions to the rule that intracranial tumors are characterized clinically by gradual progression of the symptoms."

My conclusion is that this patient had a glioblastoma of the left cerebrum into which there was bleeding and subsequently extension into the ventricular system. It would probably have been advantageous from a diagnostic standpoint to have carried out an arteriogram, or possibly an encephalogram, prior to the trephination.

Diagnosis:

(1) Glioblastoma multiforme, left cerebrum.

(2) ?Thrombosis of the left middle cerebral artery with rupture of the area of softening into the ventricle.

# DIFFERENTIAL DIAGNOSIS DR. MAURICE VICTOR

The clinical features requiring explanation that appear to be of importance in arriving at a diagnosis may be summarized as follows. The patient was a normotensive, elderly man, who was well until his present illness. The general physical examination was negative, except for mild emphysema and tortuosity of the aorta. The present illness, apparently of three weeks' duration, was subacute in onset and characterized by a right spastic hemiparesis and probably aphasia, although the description of speech defect does not allow me to say this with certainty. These symptoms were mild and not disabling until three hours before admission, when there was a sudden increase in the aphasic disorder, without impairment of the state of consciousness. The only significant spinal-fluid

abnormality at the time of admission was a protein of 51 mg. per 100 cc. On the second hospital day the patient had a generalized con-The spinal fluid now showed 2400 white cells per cubic millimeter, mainly polymorphonuclear leukocytes, about 1500 red cells and a markedly elevated protein and sugar. From this time onward deterioration was swift and progressive, with increasing coma, hyperthermia, fluctuating extensor postures of the legs and death on the third hospital day. After the second lumbar puncture, and probably prompted by the hope of discovering an abscess, the surgeons made burr holes and evacuated a subcortical blood clot from the left temporal This procedure did not seem to influence the course of the illness one way or another.

There can be no doubt, from even a cursory glance at the case history, that the patient suffered from a serious neurologic disease, to account for both his initial illness and his death. The precise neurologic disturbances and then sequential development remain to be explained.

Two ways of tackling this problem suggest themselves. The usual methodology that one employs in arriving at a neurologic diagnosis seems in this case to be superfluous. The necessity of translating symptoms and signs into anatomic and then pathological terms in largely precluded by the report of the surgeons' findings at operation. The fact is that there was a hematoma in the left temporal lobe; this information seems indisputable. I may therefore use this fact as the starting point of my discussion, and attempt to work the other historical data, signs and laboratory findings into a single feasible diagnosis.

There are only a few conditions that are capable of causing a hematoma in the temporal lobe. Trauma, spontaneous cerebral hemorrhage and bleeding from an aneurysm, from an arteriovenous malformation or from a tumor would all have to be considered.

Trauma is mentioned first, only because it can be dismissed most readily. There was no history of injury; conceding that the injury might have been trivial or overlooked, one would expect that a subcortical clot would have produced its maximal disturbance at the onset of the illness rather than three weeks after it began. The presence of a subdural hematoma need concern us no further — it would have

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been quite unlikely from the clinical data alone, and was excluded with certainty at the operation.

Next, one must exclude a spontaneous cerebral hemorrhage. It is the final episode of the illness, starting suddenly with a convulsion and progressing steadily to coma and death, that suggests this diagnosis. The three-week illness that preceded the hospital admission, characterized by a mild hemipharesis alone, remains unexplained. Furthermore, this man was normotensive, the hemorrhage was in the white matter of the temporal lobe, and when he was first seen the spinal fluid was under normal pressure and contained no red cells. All these features are quite unusual for spontaneous cerebral hemorrhage, which is predominantly a disease of patients with severe hypertension, usually affecting the central gray masses of the brain, with a bloody spinal fluid under increased pressure, and progressing relentlessly from the time of its first manifestation.

Similarly, only a weak case can be made for hemorrhagic infarction of the brain due to embolism. A source of emboli is not apparent. If the discrete episodes in the course of the illness are regarded as the effects of repeated embolism, it is unusual that they should all lodge in the same portion of the nervous system.

Could this possibly represent bleeding from an aneurysm or arteriovenous malformation? The three stages in the illness - namely, the threeweek period of mild hemiparesis, the sudden episode of aphasia and the final episode of convulsion, coma and death - could have resulted from separate bleeding episodes. Again, however, a bleeding aneurysm would explain only one aspect of the illness, and I should have to overlook a group of clinical features that one ordinarily considers essential in making such a diagnosis. The first and second episodes were not accompanied by headache, clouding of consciousness, signs of meningeal irritation or subarachnoid hemorrhage. There are, of course, cases in which the aneurysm is set deep in the Sylvian fissure and, on rupturing, bleeds into the cerebral white matter as well as into the subarachnoid space, or even predominantly into the brain. This is the so-called meningo-cerebral hemorrhage. However, in the case under discussion there is no evidence from the clinical or laboratory data on the initial examination that there was any subarachnoid blood. Meningocerebral hemorrhage without a trace of subarachnoid blood is certainly outside the limits of my experience, and therefore I could not propose this diagnosis with any degree of confidence.

Finally, one must consider the possibility of bleeding from a tumor of the brain. It should be stressed that neoplasm presenting symptoms of apoplexy is a rare phenomenon. Yet it is a well recognized pathologic state, and worth considering for several reasons. In this case I must explain not only an obvious and terminal apoplexy but also a group of signs that preceded the final episode — namely, a mild hemiparesis, progressive aphasia and elevation of the spinal-fluid protein. The various other causes of cerebral hemorrhage, though statistically far more common than neoplasm, fail to account for both phases of the illness.

Brain tumors that may be complicated by hemorrhage include glioblastoma, chorioepithelioima, hypernephroma and, very rarely, meduloblastoma. There is nothing in the record to indicate that this patient was harboring a tumor elsewhere than in the brain; the likeliest tumor to be implicated in this case would therefore be an infiltrating glioma.

A final word of explanation is required regarding the spinal fluid. On entry to the hos pital there were no cells and only a slightly elevated protein content. One day later, after the seizure, the fluid contained 2400 white cells, mainly polymorphonuclear leukocytes, 1500 red cells, 430 mg. per 100 cc. of protein, and 139 mg. per 100 cc. of sugar. Cultures grew out nonhmeolytic streptococci. There are very few pathologic states capable of thus transforming the spinal fluid within one day. The possibility of a ruptured abscess at once suggested itself, and was excluded when the surgeon evacuated a hematoma. Aside from the operative findings, the evidence for abscess was slight. There was no history of a past illness that could be interpreted as the "invasion period" of the abscess: there was no obvious source of abscess such as infected ears, sinuses or lungs. Nor was the spinal-fluid formula prior to suspected rupture particularly characteristic of abscess - one would have expected a few lymphocytes and a protein in excess of 51 mg. per 100 cc.

A simpler explanation for the purulent spinalfluid findings suggests itself, although it would be difficult to prove this point — that is, the infection was actually not part of the basic disease, but was introduced at the first lumbar puncture. Meningitis is a well recognized complication of diagnostic lumbar puncture and spinal anesthesia. The organism, most often introduced in this manner is Pseudomonas aeruginosa (Bacillus pyocyaneus), but many other organisms have been implicated, including nonhemolytic streptococci.

My diagnosis are glioblastoma multiforme of the left cerebral hemisphere, with terminal hemorrhage and iatrogenic purulent meningitis.

### CLINICAL DIAGNOSIS

Cerebral hemorrhage, left temporal lobe. ?Basilar artery thrombosis. PBrain abscess.

### DR. VICTOR'S DIAGNOSIS

Glioblastoma multiforme, left cerebral hemisphere, with terminal hemorrhage.

Iatrogenic purulent meningitis.

### ANATOMICAL DIAGNOSIS

Glioblastoma multiforme, left cerebral hemisphere, midbrain and pons, with hemorrhage.

### PATHOLOGICAL DISCUSSION

Dr. Edward P. Richardson, Jr.: In his excellent discussion of this case, Dr. Victor has arrived at the correct diagnosis. The significant post-mortem findings were confined to the brain. On external inspection, the left cerebral hemisphere was enlarged as compared with the right, and its convolutions were flattened. Furthermore, the left cerebral peduncle and left side of the base of the pons were widened. Sections of the brain disclosed a deeply situated, infiltrating tumor in the white matter of the posterior limb of the internal capsule and of the posterior part of the temporal lobe. Within

the tumor were irregularly scattered foci of necrosis and hemorrhage, and lateral to it there was a large intracerebral hemorrhage, which had been surgically entered from the surface. Similar tumor tissue was found in the left cerebral peduncle and in the left half of the pons.

Microscopical examination showed the tumor to be a densely cellular neoplasm in which some of the cells resembled well differentiated astrocytes, whereas others were pleomorphic and totally undifferentiated surrounding grossly visible, dense masses of tumor cells. The brain tissue was infiltrated by neoplastic cells for a considerable distance. There were numerous large vascular channels within the tumor, frequently surrounded by extravasations of fresh red blood cells, and the blood in the large hemorrhage appeared fresh.

This obviously malignant tumor, of which the basic cell type is the astrocyte, is generally classified as glioblastoma multiforme. tumors, rapidly growing and infiltrating, are often extremely vascular and contain numerous fragile blood vessels, in association with which small or microscopic hemorrhages are a common finding. It is, however, most unusual for them to be associated with massive cerebral hemorrhage, as occured in this case. It should be emphasized that brain tumor in general is a very rare cause of extensive bleeding into the brain. There was no evidence either grossly or microscopically of meningitis. Dr. Victor's explanation of the leukocytes in the cerebrospinal fluid cannot now be proved or disproved. It is possible that accidental infection of the subarachnoid space occurred at the time of the first lumbar puncture and that this cleared up under antibiotic treatment.



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> Arizona Medicine Journal

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Journal of ARIZONA MEDICAL ASSOCIATION, INC.

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The Editor sincerely solicits contributions of scientific articles for publication in ARIZONA MEDICINE. All such contributions are greatly appreciated. All will be given equal appreciated approximation of the contributions are greatly appreciated. nsideration

consideration.

Certain general rules must be followed, however, and the Editor therefore respectfully submits the following suggestions to authors and contributors:

1. Follow the general rules of good English, especially with regard to construction, diction, spelling, and punctuation.

2. Be guided by the general rules of medical writing as followed by the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. (See MEDICAL WRITING by Morris Fishbein).

ASSOCIATION. (see medical visual and complete. Avoid unnecessary words. Try to limit the article to 1500 words.

4. Read and re-read the manuscript several times to correct it, especially for spelling and punctuation.

5. Submit manuscript typewritten and double-spaced.

6. Articles for publication should have been read before a controversial body, e.g., a hospital staff meeting, or a county medical society meeting.

The Editor is always ready, willing, and happy to help in any way possible.

### CAUTION?

THE POIGNANT cover of "Look", October 5th, 1954, with the caption, "Are Your Doctor Bills Padded?" must have been great for sales. The article by the same title discloses nothing about the padding of doctor's bills, except the last paragraph which refers the readers, if they suspect padding, to their Medical Society's Grievance Committee. The text of "Are Your Doctor's Bills Padded?" can be classed with others, to cite a few: "The Doctor's Conspiracy In Silence," "Why Some Doctors Should Be In Jail," "Patients For Sale," "Watch It, Doc!" "How Much Should Your Doctor Charge?".

Again, we must have been ranked high because "dirt" is more salable if it incriminates the renown. If the public and our profession are to be benefitted by such an expose, we would be the last to withhold our plaudits. However, if the whole medical profession is discredited by the repetitious exposure of the few erring doctors, and the prejudicial presentation of subject matter proves to be a cold war of classagainst-class; then our present society shall crumble. Such a method has been proven effective by Hitler, Mussolini, Lenin and Stalin. Those who perpetrate such licentious implications should be repeatedly reminded of Lenin's statement when he proclaimed socialized medicine to be "the keystone of the arch of the Socialist state.'

"Are Your Doctor Bills Padded," true to form, is biased by incomplete statements, quotation of the exceptions, its narrow range of comparisons, and by inference. It implies to its readers that the higher cost of medical care is unique and disproportionate, which a full recitation of the facts would belie. If not wholly for their sales value, these unqualified statements must have been made to soften the medical profession for something to come in the future.

The author implies that it is antisocial that a few families spend a high per cent of their income to protect their health - their most valuable asset, whereas, he does not mention what should be done to help those who lose all their worldly possessions by Acts of God. He compares our earnings to those of college professors and factory workers and by quotations, challenges that the discrepancies in incomes are unjustified. He fails to criticize our social system which condones individuals becoming wealthy from profits made by the sale of the essentials of life such as food, even though part of their profits come from those who are so poor that the medical profession renders them free medical care. Nor does he mention our way of life which allows people to become wealthy by unearned incomes from exploitation of our natural resources - or the sale of land and houses necessary for sheltering the poor.

When the medical profession is conquered our social planners will then turn and destroy other essential segments of our social structure. It is to be lamented that for "sales" many of our "popular writers" are blinded, and are no more aware that they are undermining their own palaces, than are their readers who make their sales possible.

What are the present facts as regards Governmental Medicine? We are closer than most realize. The 1954-55 budget of our government for health is over two billion dollars. This is eight per cent above the preceding year and is sixteen per cent of the total private public expenditures for health. In what other socialistic venture has our government gone so far?

We have just returned the balance of power of the legislative branch of our government to a party which has favored the extension of all governmental regulations in all fields. Will their trends of the past be enlarged? Will Oscar Ewings return? We must be alert; we must be cautious in our own affairs; we must be cautious and determined that those who represent us do not destroy our social system. We must keep ourselves, the public, and our legislators informed as to what is good for all.

People, including our representatives in government, learn and are impressed by what they read — so let us furnish them with something to read and not let them form their opinion from the too frequently biased articles which appear on our news stands or yes, even some of those which come from our government presses. It is the responsibility of all of us to diseminate pertinent information. Do not entrust this decisive job to any selected group.

L.B.S.

### PLANS SET FOR CME'S 1955 CONVENTION IN L. A.

UTSTANDING lectures, panel discussions, and luncheon panel meetings, along with refresher courses, scientific and technical exhibits, and women's activities, will be featured at the 1955 Alumni Postgraduate Convention in Los Angeles next February 15 to 17, Dr. William F. Quinn, General Chairman of the Convention's Governing Board, has revealed.

The three-day convention, sponsored by the

Alumni Association of the School of Medicine of the College of Medical Evangelists, is open to all physicians regardless of their school affiliation. Usually around one-third of the physician registrants are non-CME graduates. The Convention is geared primarily to the needs of general practitioners.

The Scientific Assembly meeting from Tuesday through Thursday at the Biltmore Hotel, is preceded by two days of refresher courses on the CME's Los Angeles campus at the White Memorial Hospital. These courses are also planned primarily for general practitioners and are open to all physicians.

Requests for information about the 1955 APC should be addressed to the Managing Director, Walter B. Crawford, at 316 North Bailey Street, Los Angeles 33, California.

# AMERICAN ACADEMY OF FORENSIC SCIENCES

The Seventh Annual Meeting of the American Academy of Forensic Sciences will be held in the Biltmore Hotel in Los Angeles on February 17, 18, 19, 1955. The President of the Academy this year is Dr. A. W. Freireich, Malverne, New York and the Chairman of the Program Committee is Dr. Milton Helpern, Chief Medical Examiner of the City of New York. The Law Department of the American Medical Association has long urged that the profession take an increasing interest in medicolegal problems and the programs of the Academy meetings are a definite step in that direction. Further information, may be obtained by writing Dr. W. J. R. Camp, University of Illinois College of Medicine, 1853 W. Polk Street, Chicago, Illinois, Secretary, or Dr. Frederick D. Newbarr, 109 Hall of Justice, Los Angeles 12, California, Chairman of Local Committee on Arrangements.

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# TOPICS OF Current Medical Interest

RX., DX., AND DRS.

By GUILLERMO OSLER, M.D.

HE giant chest surgeon (in every respect), Dr. Paul 'Buck' Samson of Oakland, tells us of the Atlantic City meeting of the AMERICAN ASSOCIATION FOR THORACIC SURGERY. So, we tell you . . . The dates are April 24, 25 and 26, 1954. A bit early for swimming, but it will make a wonderfully concentrated meeting . . . The headquarters is in the Chalfonte-Haddon Hall, one of the best on the boardwalk . . . The Journal of Thoracic Surgery gives the details each month on how to submit abstracts, etc. If eligible and/or interested you could have a grand trip by way of beautiful Washington, Philadelphia, New York, or El Paso.

The biggest drug news (and the biggest drug adv't) of the fall season is "MYCOSTATIN" (Squibb Mystatin). This new antibiotic is 'narrow spectrum', and is said to be effective only on MONILIA . . . The announcement was made in the newspaper - size 'Squibb News'. (The only other front-page item was "Steclin", the brand of Tetracycline made by the same company) . . . Any drug which proves to be effective on a fungus is news. A preparation which hits monilia would be good for the primary or secondary infections which have occasionally turned up in the past, but wonderful for the overgrowth of monilia which occurs in the intestinal tract during therapy by broad-spectrum antibiotics. Anorectal moniliasis is a resistant, persistant, and unpleasant syndrome, and we hope that Mycostatin works as well as they say it does.

TERRAMYCIN (Pfizer brand of oxytetracycline) has now reached the age where it has been used from 1 to 3 years as a PROPHYLACTIC in nephrotic and rheumatic fever cases. It is said to be almost free from toxicity or loss of effectiveness after many months. . . One report stresses the complete absence of allergic reactions in 800 patients with topical use of the drug. . . . Pfizer also boasts of its ANTI-PROTOZOAL AGENT "Flagecidin" (Anisomycin), effective against trichomoniasis and amebiasis. This is another "we-shall-see" drug.

The Pfizer 'Spectrum' in the J.A.M.A.) recently contained a summary of "ACUTE PHASE REACTANTS". The term, which at first sounds like double-talk, applies to a group of changes which occur in acute infections. They can be diagnostic of the acute phase, they may indicate how tissue injury occurs, and they may show de-

fensive attempts. . . . The SEDIMENTATION RATE depends on the concentration of certain proteins in the plasma and serum. C-REACTIVE PROTEIN is an alpha globulin which is an index of activity, especially in rheumatic fever. Carbohydrates may be indicators, including SER-UM POLY-SACCHARIDE, HEXOSAMINE, et al. Serum microprotein and antihyaluronidase are other and more obscure substances. . . . Someone will, or should, correlate this group with fever, clinical symptoms, treatment, and each other for better practical value.

Tucson's Dr. W. Paul Holbrook spoke in Los Angeles to a recent general practice convocation. He stressed the PREVENTION OF DEFORMITIES and crippling in arthritis. Said it was possible. He said so when aspirin was the standby, and all through the ups and downs of cortisone. . . . Said climate helps about 20 per cent of the cases of rheumatoid arthritis. (Come home and explain this low, honest percentage, Paul!) It is about the same per cent Shutzbank reported for asthma.

A report from Washington suggests that we can be watching for more information on TWO NEW STERIODS which the National Institute of Health says are helpful for arthritis. They are called METACORTANDRALONE and META-CORTANDRACIN, made by the Schering Corp. . . . The early claims are cautious, but eleven tough cases have shown a notable response. The amount available is scanty, and will be for 8 to 12 months. Side-effects are rare, so far. The potency is several times that of cortisone, so that the dose is only 5 to 25 mg., given orally. The serious cortisone side-effects are said to be absent. The drugs have not yet been tried on the other diseases for which cortisone has been used. . . . Eleven cases are so few that we shouldn't mention them if they were done in the White

Here is a treatment which takes a person back 10 or 15 years. Bryson of Cleveland reports in the 'American Surgeon' that 91.4 per cent of 426 patients had good results from a COBRA VENOM preparation. . . . Here we are, surrounded by cortisone and huge piles of aspirin (as well as even newer drugs), and the man reports on cobra venom. It is called 'Nyloxin', and is composed of the venom plus formic and silicic acids. . . . In view of past trials with bee stings, etc., etc., and in view of the other use of snake venom, this

report should be considered with caution until confirmed.

If one can credit an advertising paragraph in 'Hospital Topics', the perfect PRE-OPERATIVE DEPILATORY has arrived. . . . It is stated that a material called 'Pellex' can be applied for 10 minutes to the area, followed by a clean loss of hair at skin level and no evidence of toxicity . . . It could be very handy in case that orderly who can shave is not available and in case it should actually be free of irritation.

The same trade journal also tells of a boon to the linen-room. The Huges Co. makes a white PATCH to be used for holes, rips, and tears in all kinds of white-goods. It is ironed-on, will launder but not fray or stiffen, and should be a good 'deal' if the sheet or pillow-case has not gone completely to pieces.

Pendergrass and his associates at the University of Pennsylvania have been working on high-voltage x-rays for several years. They call it 'DIAG-NOSTIC SUPERVOLTAGE RADIOGRAPHY', and it is said to overcome the disadvantages of too little or too much exposure. . . . By some strange phenomenon the bones and other dense tissue are penetrated without obliterating the soft-tissue (lung structures. Films of the chest look as though they were taken with a grid technic, and the trachea and bronchi show up as they do in planigrams) . . . The total dose can be kept within safe limits. . . . The equipment, of course, is not yet available, and will cost 55,000 to 95,000 dollars.

A list of the FACILITIES of a new and MODERN hospital reads like our memory of 'Popular Mechanics'. Hardly believable. . . . Mt. Sinai in Los Angeles is typical. Voice intercoms; pneumatic transport of medicines; bedside control unit for lights, radio, and signals; pillow radio receivers; oxygen piped to rooms through the walls; food handled on a conveyor belt in vacuum containers; case-history taken before admission, sent to floor before the patient arrives; etc. . . . The patients are probably old-fashioned, though. The cost per bed isn't: — \$12,000.

Years ago a friend of ours was said to have a mild CARDIAC DAMAGE, and the cause was decided to be a possibly INFECTED GALL-BLAD-DER. Since he was relatively young (35 years and relatively wealthy) it was suspected that the subsequent cholecystectomy might not be on a strictly scientific basis. . . . Now, 20 years later, his heart still bears up well. . . . This may or may not be proof of the old focal infection theory, but a publication by H. A. Patterson of New York (in the Annals of Surgery) is a surprising confirmation of the use of surgery. He believes that the patient with coronary disease may improve after removal of gall-stones; that this may be due to removal of nerve stimuli from

the organ; and that the cardiac damage may be reversible.

Do you know the topics which might be included in a symposium on Blood Banks? The list is interesting and sometimes strange (Am. Jour. Clin. Path.) . . . "The Use of Whole Blood and Fractions', 'Sterilization of Blood Plasma' (ultraviolet radiation is approved but not very effective; beta-propiolactone is a chemical with promise). 'Transfusion Reactions' (prevention is best; therapy is by antihistamines). 'The Use of A and B Substances' (carbohydrates which increase antibody titers). 'The Coombs Antiglobulin Test'. 'Rare Isoagglutinins' 'Rh-Hr Factors'. 'ABO Blood Groups'. 'Preservation of Blood' (it can be stored for four weeks under ideal conditions, or two weeks by most methods). Requirements for Donors' (and its a wonder anyone qualifies! (Data on who you are; pernit; medical history; physical exam., they say; super physical condition; proper diet before donation; limitation of contributions; exclusion of those who have had TB. brucellosis, coronaries; recent rheumatic fever, low cardiac reserve, pregnancy in past six months, recent respiratory infection, asthma, active allergy, latent blood dyscrasia, and dental extraction in past month. WOW!)

A report from Copenhagen by Clemmesen makes the management of BARBITURATE AND MORPHINE POISONING seem very simple. To back it up he quotes a reduction of mortality in that city from 25 per cent to 1.6 per cent in six years. . . . The prime principles are: 1. antishock therapy; 2. continuous administration of oxygen; and 3. the maintenance of patent airways. They have abandoned gastric washings, and usually withhold stimulants (which may cause fatal hyperthermia). . . . One hospital (Bispebjirg) cares for all cases in the area of Copenhagen, and has special facilities and staff. Special charts, special blood studies, and special nursing are used. Oxygen is given through a hollow tongue depressor. A 'shake-up' is done every two hours, with aspiration of the air passages. About 2 liters of fluid and 300,000 units of penicillin are given parenterally per day. . . . Plasma is given for hypotension. A heat cradle is used for low temperature levels. Several other items are used in the technic, but amphetamine is used not to stimulate respiratory paresis but to increase flow of blood through peripheral veins. . . . This routine seems incomplete from the American viewpoint which often is concerned with WHICH stimulant to use.

"W. C. A." (Dr. Walter Alvarez) writes on 'CANKER-SORES' in his small journal 'Modern Medicine'. This is one of the commonest problems in general practice, as on can see by scanning the columns of 'Minor Notes and Queries' in the J.A.M.A. for the past 20 years. . . . Everyone has his own favorite ETIOLOGY — virus infection.



# ulletin THE HOSPITAL BENEFIT

Special

Published Bi-Monthly by the Hospital Benefit Association, First Street at Willetta, Phoenix

December, 1954

### estion QUIZ Do you know the answers?

- Q. When a question arises regarding payment of hospital or sur-gical benefits, is the final deci-sion made on the basis of the patient's story?
- A. No. In such cases, of course, the patient is given every opportunity to explain his or her reasoning. But the final decision must be made on the basis of the actual hospital records. That is why it is so important that doctors and hospital of-ficials make sure the records are complete and accurate.
- Q. In addition to maintaining accurate hospital records, is there any other way the physi-cian can help speed payment of his bill?
- Yes . . . a very simple way. Just be sure to send us the filled-in billing form promptly! Believe it or not, settlement of some cases is held up for weeks because the doctor does not get around to sending us a bill. Once we receive the bill, we try to send a check within three to five days.
- Q. Several patients have asked me if the HBA Surgical Plan pays for home calls or office calls for treatment of accidental injuries. Does it?
- dental injuries anywhere, provided such treatment is admin-istered within 24 hours after the accident. The HBA does not, however pay for medical treatment of illnesses.
- Q. May an X-ray also be taken at a place other than a hos-pital in case of accidental injuries?
- The Surgical Plan also A. Yes. provides that an X-ray of a fracture or dislocation may be taken at a doctor's office or an X-ray laboratory if taken within 24 hours after the accident.

### HERE'S WHY WE REFER "HOSPITAL RECORDS"

The Hospital Benefit Association realizes that the doctor-patient relationship involves more than just medication, bone-setting and surgery. The patient invariably considers his doctor as a trusted friend, which is always helpful therapy in itself.

Therefore, we do all we can to help you maintain a happy relation-

ship with your patients.

For example, we get a case once in awhile that's highly "questionable" as to whether or not a policyholder is eligible for benefits for hospitalization or surgery due to a condition excluded under the policy or a pre-existent condition. Usually, it's informa-tion we get from that doctor that settles the issue.

However, we see no point in putting you on the spot with the patient. So, we never say, "We're sorry, but your doctor says he was sorry, but your doctor says he was treating you for this condition five years before you joined HBA." Instead, we tell the patient that "Hospital records show thus-and-so." This way, the onus is put upon the cold, impersonal hospital records, and it doesn't occur to the patient to criticize you for not turning in a biased, untruthnot turning in a biased, untruthful report so that benefits might . even though you would like to see the patient get

the benefits. You Can Be Frank On Reports

Since it is our policy to hold your reports in strictest confi-dence, you may be completely frank in what you say. In fact, the more accurate and complete the records are, the better it is for you because final settlement can be made immediately without asking you for additional information.

Claim Forms

While any claim form is a bother, you must remember we ask the doctor to fill one out in only a little over 3% of the cases, not 100% of the time. These are instances when we need all the information we can get from the doctor in order to arrive at a fair and equitable decision regarding benefits. So, we appreciate your patience and cooperation in bearing with us when, occasionally, we do ask you to fill out a claim form.



We, at Hospital Benefit Association, sincerely hope that Santa Claus brings you all your heart's desires because you, through your generous cooperation, have made life so much more pleasant for us. Thank you, Doctor . . . and

Merry Christmas!

### PLASTIC EASEL CARD CUTS DOWN RED TAPE

Sometimes HBA members will A. Yes. HBA surgical schedules forget to present their Member-provide for treatment of acciship Cards when they go to physicians' offices for emergency treat-ment of accidental injuries. This, of course, leads to a certain amount of paper-work and delay in payment.

To help eliminate this situation, we have for your waiting room table a small (7¼" x 4"), neat plastic easel with a card reminding your HBA member-patients. tients to present their Member-ship Cards so you will know of their HBA protection.

The easel and card are free for the asking. For yours, just have your girl phone our Phoenix Of-fice at ALpine 8-4888 or our Tucson Office at 3-9421.

trophic causes, arterio-sclerosis of the brain, a difference in electric potential between dissimilar fillings, etc. . . Dr. W. C. A. has his own, and a personal one at that: FOOD. In his case it is chocolate. In other cases, according to Dr. Albert Towe, it is an allergy to chocolate, tomatoes, pineapple, or pork. . . Dr. Paul Foster, a Los Angeles medico-political figure of reknown, has (surprisingly to some) written a very fine little summary of causes. This spreads the blame, and makes the choice tougher for the G.P.

EUTHANASIA is a tough subject for doctors. They may be quoted in or out of context, for what they have said on the subject. . . . They may also be quoted for what they haven't said, as in the story about Dr. Hugh Cabot, once of the Mayo Clinic. He asked a medical audience "Will those of you who have never put a hopelessly diseased patient out of his misery please raise your hands?", and no one did. . . . (And like the other articles, we have just dragged in the names of a famous man and clinic). . . . One can read about the subject in many odd places, and they all quote the petition to the New York State Legislature, and the preservation of life from infections for more horrible ends by degenerative and neoplastic disease. . . . The publication we have just seen is not exactly scientific. Actually the people in the Euthanasia article ("I Have Killed For Mercy!" in 'SEE' Magazine) were the ONLY ones with clothes on.

Another, more dressy, non-medical publication (TIME MAG.) quotes Pillemer of Western Reserve on the discovery of a protein which may be the "Something" which gives the body the power to destroy 'germs'. . . . The material has been labelled 'PROPERDIN' (not propadrine', which is a type of nose-drop). Properdin is non-specific, and fills the gaps which exist between antibodies for specific infections. It destroys or neutralizes a wide range of bacteria and viruses. . . . Better not try to buy any for a while.

# ANNUAL MEETING SCIENTIFIC SESSIONS

THE 64th Annual Meeting of your Association will be held in Tucson, May 4-7, 1955, with headquarters at El Conquistador Hotel. Through arrangements made by the Scientific Assembly Committee, we are happy to announce participation of the following two guest orators who will appear with others on the scientific sessions program.

### PHILIP D. WILSON, M.D.



Philip D. Wilson, M.D. New York

Receiving his Bachelor of Arts degree at Harvard College and his medical degree at Harvard Medical School in 1912, Dr. Philip D. Wilson has been Surgeonin - Chief at the Hospital of Special Surgery, New York City, since 1935; Director of the Orthopaedic Division, New York Hospital, since 1951: and Clinical

Professor of Surgery (Orthopaedics) at Cornell Medical College, 1951. During the years 1943-46 he was Civilian Consultant to the Surgeon General; in 1947 Chevalier of Legion of Honor (France); Honorary Commander, Order of British Empire, 1948; and member of numerous medical societies.

### RICHARD HAROLD FREYBERG, M.D.



Richard Harold Freyberg, M.D. New York

Graduate of the University of Michigan Medical School, Ann Arbor, Michigan in 1930, Doctor Richard Harold Freyberg has interned at the University Hospital. Ann Arbor 1930-32; instructor in internal medicine at the University of Michigan Medical School 1932-34; Assistant Professor of internal medicine and

director of Rackham Arthritis Research Unit, University of Michigan Medical School, 1934-44; and associate professor of clinical medicine, Cornell Medical College; Director of the department of internal medicine, Hospital of ts

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Special Surgery, New York City: Assistant attending physician, New York Hospital; and director of arthritis clinic, New York Hospital and Hospital of Special Surgery; since 1944 to date. Also, member of the Board of Directors; Executive Committee; and Medical and Scientific Committee, Arthritis and Rheumatism Foundation, 1949 to date; and member of the United States Public Health Service, Advisory Council of the National Institute of Arthritis and Metabolic Diseases, 1950 to date. Membership affiliations include Fellow, American Medical Association, New York Academy of Medicine, and American College of Physicians; Diplomate of American Board of Internal Medicine: Past President of the American Rheumatism Association; and member of the American Society for Clinical Investigation, Central Society for Clinical Research and New York Rheumatism Association.

### SEMINAR IN OPHTHALMOLOGY AND OTOLARYNGOLOGY

THE ninth annual University of Florida Midwinter seminar in Ophthalmology and Otolaryngology will be held at the Sans Souic Hotel in Miami Beach the week of January 17th, 1954. The lectures on Ophthalmology will be presented on January 17th, 18th, and 19th and those on Otolaryngology will be on January 20th, 21st, and 22nd. A midweek feature will be the Midwinter Convention of the Florida Society of Ophthalmology and Otolaryngology on Wednesday afternoon, January 19th, to which all registrants are invited. The registrants and their wives may also attend the informal banquet at 8 p.m. on Wednesday. The Seminar schedule permits ample time for recreation.

The Seminar lectures on Ophthalmology this year are: Dr. William F. Hughes, Jr., Chicago; Dr. Phillips Thygeson, San Jose; Dr. James Allen, New Orleans; Dr. Walter H. Fink, Minneapolis; and Dr. Milton L. Berliner, New York. Those lecturing on Otolaryngology are: Dr. Paul Holinger, Chicago; Dr. Lawrence R. Boies, Minneapolis; Dr. Edmund P. Fowler, Jr., New York; Dr. Arthur W. Proetz, St. Louis; and Dr. David D. DeWeese, Portland, Oregon.

# Book REVIEWS

EVIEWS of the following books will be published in the near future.

lished in the near future,

LETS EAT RIGHT TO KEEP FIT by Adelle Davis, A.B.,
M.S., consulting nutritionist. Harcourt, Brace and Company, New York. 1954. Price \$3.00.

HUGH ROY CULLEN, A Story of American Opportunity, by
Ed Kilman and Theon Wright. Prentice-Hall, Inc. New
York. 1954. Price \$4.00.

THE CONCEPT OF SCHIZOPHRENIA by W. F. McAuley,
M.D., Belf., D.P.M.R.C.P.S.I. Philosophical Library, New
York. 1954. Price \$6.00.

THE PHYSICIAN AND HIS PRACTICE by Eighteen Authorities,
Edited by Joseph Garland, M.D. Little, Brown and Company. Boston. Toronto. 1954. Price \$5.00.

TIFTY YEARS OF MEDICINE by Lord Horder, G.C.V.O.,
M.D., F.R.C.P. Philosopical Library, Inc.
1954. Price \$2.50. (Reviewed Dec., 1954).

PERIPHERAL CIRCULATION IN MAN, A Ciba Foundation
Symposium, Edited by G. E. W. Wolstenholme, O.B.E.,
M.A., M.B., B.Ch., and Jessie S. Freeman M.B., B.S., D.P.H.
Little, Brown and Company. Boston. 1954. Price \$6.00.

### BOOKS RECEIVED

"USES OF WINE IN MEDICAL PRACTICE." A summary published by Wine Advisory Board, San Francisco 3, California. Available to physicians on request to above address.

### FIFTY YEARS OF MEDICINE - Lord Horder

THESE three lectures from the Harben Series of 1952 give us a superficial survey of the developments in medicine since the turn of the century. He encourages integration rather than a super specialization in medicine. Nutrition is considered "the most significant advance of all in the past century of scientific medicine". The National Health Service of England is severely criticized and by specific example is shown to have been a mistake. To quote, "I merely warn our American cousins (has one no duty to ones cousins?) against the blunders we had ourselves committed and against which I had animadverted consistently and persistently at home and for some years before the irrevocable step (National Health Service) was taken." Specific views are presented upon some of the new directions that medicine may or should take in Eugenics, Cremation, Noise Abatement, Biological Control, and finally in "the Disease of War". This is an interesting hours reading. Its broad presentation will permit one to profit from the fifty years experience of Lord Horder and may direct our eyes to some of the future aspects of medicine rather than to keep them in the limited valleys where so many of us specialize.

Darwin W. Neubauer, M.D.

# MEDICAL ABSTRACT TREATMENT OF WOUNDS INFLICTED BY RABID ANIMALS

THERE IS A known reluctance on the part of physicians to employ fuming nitric acid as a prophylaxis against rabies. The procedure is painful and destructive of tissue, it slows healing, it promotes bacterial infection, and it is not highly effective.

The authors have attempted, with animal studies, to simulate natural introduction of the virus by inoculation, and to determine effective means of preventing occurrence of the disease.

The experiments were conducted with a fixed rabies virus which was found to be consistent in causing the disease by intramuscular injection. Extensive ragged wounds were produced in skin and muscle tissue, and the virus was deposited in the wounds and then worked into the muscle tissues to simulate the bite of a rabid animal.

When fuming nitric acid was applied to the wounds, severe chemical burns and scarring occurred in about 90 per cent of the instances, with healing requiring approximately four weeks.

Other treatment methods were employed, and it was found that wounds treated with soap solution, tincture of iodine or Zephiran chloride healed in half the time, without excessive scarring. Zephiran 1% solution was for practical purposes as effective as the 4% solution, without corrosiveness.

The 1% solution of Zephiran chloride, applied with cotton swabs, was apparently more effective than fuming nitric acid or soap solution, was easier to apply, and did not tend to cause scarring or burns. From these studies, Zephiran chloride 1% solution emerged as the material of choice for the prophylactic treatment of wounds artificially contaminated with the virus of rabies.

It is emphasized by the authors that no treatment prevented all animals from developing the disease, that other approved prophylactics should be employed where indicated.

### MEETING NOTICE

The eighteenth annual meeting of The New Orleans Graduate Medical Assembly will be held March 7-10, 1955, Headquarters at the Municipal Auditorium.

# OF PROCTOLOGY

LAN now to attend the 7th Annual Convention of the International Academy of Proctology at the Plaza Hotel, New York City, March 23 to 26, 1955. The International, National, and Local Program Committees are planning an unusual seminar on anorectal and colon surgery. There will be special emphasis on anorectal presentations, and on panel discussions, as requested by those who attended the Chicago meeting in 1954.

Plans are being developed for wet clinics and lectures at the Jersey City Medical Center under the direction of Dr. Earl Halligan, surgeonin-chief of the Medical Center.

Eminent speakers from all parts of the country and abroad will present interesting papers and motion picture demonstrations of their personal techniques. Mexico is expected to be very well represented at this meeting.

The delegates and trustees, and their wives, are cordially invited to cocktails and dinner on Tuesday evening, March 22, 1955, the evening before the official opening of the scientific activities of the convention. Both members and non-members of the Academy, and their wives, should plan to attend the Saturday night, March 26th banquet. The Banquet Committee promises the best cocktails and hors d'oeuvres in New York (prepared by the masters of The Plaza cuisine), and the finest dance music and entertainment for your pleasure.

The Women's Auxiliary has planned a very unusual program for the wives of the members and their guests.

Please remember that all physicians and their wives are cordially invited to attend the annual conventions of the International Academy of Proctology, whether or not they are affiliated with the Academy. There is no fee for attendance at these teaching sessions of the Academy.

# ARIZONA SOCIETY OF MEDICAL TECHNOLOGISTS

Placement service for all physicians and hospitals requiring registered (ASCP) medical technologists.

Mrs. Marian Hannah, M.T. (ASCP)

Placement Director 507 Professional Building Phoenix, Arizona

# Notes from the EDITORS PEN

### NO SPECIAL CLASS OF CITIZENS

In June, 1953, the House of Delegates of the AMA stated the medical profession's policy on VA hospital care, based on the fundamentally American idea that a man has earned federal medical care only if his illness is due to military services.

To those critical of such a policy who believe it is anti-veteran dreamed up for selfish reasons, let us quote from an address by Franklin D. Roosevelt before the House of Representatives, March 27, 1934:

"The first principle, following inevitably from the obligation of citizens to bear arms, is that the Government has a responsibility for and toward those who suffered injury or contracted disease while serving in its defense. "The second principle is that no person, because he wore a uniform, must thereafter be placed in a special class of beneficiaries over and above all other citizens. The fact of wearing a uniform does not mean that he can demand and receive from his Government a benefit which no other citizen receives."

### FEDERAL REINSURANCE

It is becoming more and more evident that the Administration through Secretary Hobby during the next Legislative Session will press for enactment of the federal reinsurance program defeated in the last Congress. Recently Mrs. Hobby stated: "\* \* \* time is runing against those who seek to keep health insurance on a voluntary basis." She added: "We still strongly believe in a bill \* \* \* which seeks to compress the experimentation of the next 20 years into less than half the time through the simple mechanism of a broad sharing of risks. We believe such a bill will \* \* \* nurture rather than weaken the voluntary health insurance concept."

AMA opposition is based on the ground that (a) the insurance carriers themselves have all the reinsurance money needed, (b) voluntary health insurance is making "extremely rapid" progress without reinsurance, (c) reinsurance would not make uninsurable risks insurable, and (d) without an objectionable subsidy reinsurance would not reduce the cost of insurance or "overcome the inertia of the unwilling buyer."

### GERMAN PHYSICIANS IN U. S. SUBJECT TO DOCTOR DRAFT

Physicians who are nationals of Germany and have been admitted to this country for permanent residence must now register under the Doctor Draft Act, those who had not yet reached their 50th birthday on January 15, 1951. No official estimate of the number of physicians, dentists or veterinarians affected is available, but it is certain to run into the thousands.

### HISTORY IN THE MAKING

One important project, the development of which is long over-due, has been recognized by our President, Doctor Oscar W. Thoeny. The progress of medicine in our Great State can unfold a story of achievement exemplary throughout the Land, reflecting distinction throughout the membership of our profession, which should be documented. With the appointment of Doctor Robert S. Flinn and Doctor Howell S. Randolph to membership on the History and Obituaries Committee who have indicated an interest and willingness to undertake this project we may expect results and accomplishment.

### PROOF POSITIVE OF MEDICAL PROGRESS

While all of us have read and heard much about the tuberculosis problem in Arizona, it is of interest to note that the Trudeau Sanatorium, the country's oldest private establishment, for the treatment of this disease, closed December first. This 100-acre Adirondack cottage community, a mile north of Saranac Lake, New York "will yield to scientific progress in the treatment and cure of the disease that spurred its founding 70 years ago," stated an article in the New York Times.

Doctor Gordon Meade, executive director, summed up the closing of the sanatorium in a few sentences: "This is a milestone. We can no longer continue because of the decline in the number of tuberculosis patients. A patient's length of stay has been shortened by the new antibiotic drugs and surgery techniques; there have been fewer relapses and lots more home care."

The tuberculosis mortality rate has been dropping steadily. In 1900 the death rate was 200 per 100,000 population; today it is only 12.6 per 100,000.

### MARICOPA DIRECTORY SERVICE

After five years of arduous planning on the part of the Directory Committee of Maricopa County Medical Society, July 12, 1954 saw the opening of its telephone Directory Service. Six qualified operators under supervision is the only R.N. operated directory providing Direct Line service in the Maricopa area. Twenty-four hour service is available to both the public and medical doctors. It is reported that today the Society Directory is receiving an estimated 90% of the referral requests and emergency calls. In emergency calls, no longer is the anxious patient or relative or friend given

(Continued on the Next Page)

REGIONAL CANCER HEAD

Ian Macdonald, M.D., of Los Angeles, was recently elected director of the American Cancer Society's Region 6 during the Society's annual meeting in New York City. Region 6 includes Arizona, California, Colorado, Nebraska, New Mexico and Utah. Many of you will remember Doctor Macdonald who participated as a guest orator during the Scientific Sessions of the 61st Annual Meeting of this Association held in Phoenix in 1952.

STATE HEADQUARTERS RELOCATED

For your information the headquarters of The Arizona Medical Association, Inc., has moved its offices to a new location, 411 Security Building, Phoenix, Arizona. We will appreciate it if you will note your records accordingly.

# MID-WINTER RADIOLOGICAL CONFERENCE

The Seventh Annual Mid-Winter Radiological Conference, sponsored by the Los Angeles Radiological Society, will be held at the Ambassador Hotel in Los Angeles, California on Saturday and Sunday, February 26 and 27, 1955.

The following speakers will present papers on the subjects listed:

Prof. Olle Olsson, Lund, Sweden: 1. Renal Angiography; 2. Tolerance to Contrast Media. Paul C. Hodges, M.D., Chicago, Illinois: 1. Neoplasms of Bone; 2. Fibrous Dysplasia of

Bone.
Simeon Cantril, M.D., Seattle, Washington:
1. Hodgkins Disease; 2. Palliation and Care of

Terminal Patients.

Leslie Bennett, M.D., Los Angeles, California:

Medical Isotopes.
 George Jacobson, M.D., Los Angeles, Calif.:
 Value of PA Chest Film in Cardiac Radiology.

Ross Golden, M.D., Los Angeles, California:

1. Tumors of the Small Intestine;

2. Physical Problems in Detection of Cancer of the Stomach.

Charles E. Grayson, M.D., Sacramento, Calif.: 1. The Pulmonary Cripple.

Informal round table luncheons with the guest speakers will be featured both days with the cost of the luncheons included in the Conference fee of \$20.00. An additional charge of \$6.50 per person will be made for the banquet on Saturday evening, February 26. Residents in radiology and radiologists in active military service will be admitted to the scientific sessions of the conference without payment of registration fee.

Conference reservations may be made through

the chairman, Richard A. Kredel, M.D., 65 N. Madison Avenue, Pasadena, California. Please make checks payable to Mid-Winter Radiological Conference.

Hotel reservations should be made as soon as possible through the convention manager of the Ambassador Hotel.

# STANFORD SPRING POSTGRADUATE CONFERENCE IN OPHTHALMOLOGY

MTANFORD University School of Medicine will present the annual postgraduate conference in Ophthalmology from March 21 through March 25, 1955. Registration will be open to physicians who limit their practice to the treatment of diseases of the eye; or eye, ear, nose and throat. In order to allow free discussion by members of the conference, registration will be limited to thirty physicians.

Instructors will be Dr. A. Edward Maumenee, Dr. Dohrmann K. Pischel, Dr. Jerome W. Bettman, Dr. Max Fine, Dr. Earle H. McBain, and Dr. Arthur J. Jampolsky.

Programs and further information may be obtained from the Office of the Dean, Stanford University School of Medicine, 2398 Sacramento Street, San Francisco 15, California.



#### PROGRAM THIRD ANNUAL CANCER SEMINAR

HE Arizona Division, American Cancer Society, in association with the Arizona Medical Association, announces the program of the Third Annual Cancer Seminar, Paradise Inn. Phoenix, Arizona, January 13th, 14th and 15th, 1955. Edward H. Bregman, M.D., Chairman, Mrs. Robert E. May, President.

January 13, 1955

#### CANCER OF THE GASTROINTESTINAL TRACT

9:30 A.M.

Gastric Ulcer or Gastric Ulcer The Physician's Dilemma:

George T. Pack, M.D., Surgeon, Memorial Hospital Group, New York City, N. Y.

The Radiologist's Diagnostic Criteria in Lesions of the Upper Gastrointestinal Tract:

Eugene P. Pendergrass, M.D., Professor of Radiology, University of Pennsylvania.

Premalignant Lesions of the Colon and Rectum. Their Diagnosis and Management:

Averill Liebow, M.D., Eugene P. Pendergrass, M.D., and Alexander Brunschwig, M.D.

The Rectal Sphincter Preservation Controversy: George T. Pack, M.D.

2:00 P.M.

Problems in the Rehabilitation of the "ostomy patient":

George T. Pack, M.D.

Surgery of Hepatic Neoplasms:

Alexander Brunschwig, M.D., Professor, Clinical Surgery, Cornell University Med. School. **BONE TUMORS** 

3:00 P.M.

Symposium of the Diagnosis and Treatment of Tumors of Bone: Pathological, Radiological and Surgical Aspects:

Louis Lichtenstein, M.D., Leader Pathologist, V.A. Center, Los Angeles, California.

January 14, 1955 CANCER OF THE BREAST

9:30 A.M.

The Development of Present Day Treatment for Cancer of the Breast:

George T. Pack, M.D.; J. A. del Regato, M.D., Director of Penrose Cancer Institute, Colorado Springs, Colorado.

10:30 A.M.

Progress in Cancer Research:

Charles S. Cameron, M.D., Medical and Sci-

entific Director American Cancer Society, New York City, New York.

#### CANCER OF THE FEMALE GENITAL TRACT

2:00 P.M.

The Role of Cytology in the Detection of Early Uterine Cancer:

Averill Liebow, M.D., Professor of Pathology Yale University.

Symposium: The Present Day Controversy in the Management of Uterine Cancer:

Eugene P. Pendergrass, M.D.; J. A. del Regato, M.D., Alexander Brunschwig, M.D.

Urinary Tract Complications of Radical Pelvic Surgery for Cancer:

Reed Nesbit, M.D., Professor of Urology, University of Michigan Medical School.

January 15, 1955

#### CANCER OF THE GENITOURINARY TRACT

9:30 A.M.

Testicular Tumors: Classification, Diagnosis, and Management:

Averill A. Liebow, M.D., Victor F. Marshall, M.D., Professor of Clinical Surgery (Urology) Cornell & Memorial Hospital, New York City.

End Results in Treatment of Prostatic Cancer: Reed Nesbit, M.D.; Victor F. Marshall, M.D. The Differential Diagnosis of Hematuria:

Victor F. Marshall, M.D.

The Clinical Behavior and Curability of Bladder Cancer:

Reed Nesbit, M.D.; Victor F. Marshall, M.D.

#### SPEAKERS

ALEXANDER BRUNSCHWIG, M.D. Professor, Clinical Surgery Cornell University Medical School

Att. Surgeon, Memorial Hospital New York City

CHARLES S. CAMERON, M.D. Medical & Scientific Director

**American Cancer Society** 

New York City

J. A. del REGATO, M.D.

Professor of Radiology

University of Colorado School of Medicine

Director, Penrose Cancer Institute

Colorado Springs, Colorado

#### LOUIS LICHTENSTEIN, M.D.

Pathologist, Veterans Administration Center Consulting Pathologist, L. A. County Hospital Los Angeles, California

#### AVERILL LIEBOW, M.D.

New Haven, Connecticut

Professor of Pathology Yale University School of Medicine

#### VICTOR F. MARSHALL, M.D.

Professor of Clinical Surgery (Urology)

Cornell University Medical School

Director, Department of Urology

N. Y. Hospital, Cornell Medical Center

**New York City** 

REED NESBIT, M. D.

Professor of Urology

University of Michigan Medical School

Ann Arbor, Michigan

#### GEORGE T. PACK, M.D.

Clinical Professor of Surgery

New York College of Medicine

Attending Surgeon in Chief

Gastric & Mixed Services

Memorial Hospital, New York City

#### EUGENE P. PENDERGRASS, M.D.

Professor of Radiology

University of Pennsylvania Medical School

Philadelphia, Pennsylvania

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Urologist, Phoenix

Charles Van Epps, M. D.

Gynecologist, Phoenix

George A. Williamson, M. D.

Orthopedic Surgeon, Phoenix

Programs and registration blanks are now available at the Arizona Division, American Cancer Society, office, 1429 North 1st Street, Phoenix, Arizona.

## PHOENIX INSTITUTE OF NEUROLOGY & PSYCHIATRY

The Phoenix Institute of Neurology & Psychiatry is conducting a research project on Amyotrophic Lateral Sclerosis.

Initial studies indicate the possibility of a vascular disturbance in the affected areas of the medulla oblongata, due to compression of the vertebral arteries by proliferative changes in one or several cervical vertebrae. We are greatly interested in obtaining films of the cervical spine in patients suffering from amyotrophic lateral sclerosis, especially in regards to the course of the vertebral artery.

Any patients referred to the Institute for this research project will be examined free of charge upon the request of the referring physician.

The cooperation of any physician who has patients with amyotrophic lateral sclerosis under his care would be greatly appreciated.

Otto L. Bendheim, M.D.

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# ARIZONA Pharmaceutical PAGE

#### STANDARDS - THE BACKBONE OF MEDICINE

By Joseph A. Zapotocky, Ph.D. College of Pharmacy, University of Arizona

ERY often, those who reap the greatest benefit from a situation, take it the most for granted. The *United States Pharmacopeia* and *The National Formulary* are of invaluable assistance to both physicians and pharmacists. Much of the progress made by both of our professions is due, in part, to these standards; yet the significance of these two great works is often completely lost. Both compendia present us with lists of products which have been standardized as to purity, strength and nomenclature. Each monography completely identifies a product which is therapeutically acceptable by physicians, pharmacists and other professional groups. The U.S.P. or N.F. product name always identifies a substance which will have the same properties and strength and which can be relied upon to give uniform therapeutic results.

The first U. S. Pharmacopoeia was prepared in 1820 by a group of physicians who represented various medical societies and medical colleges of the nation. This work was prepared specifically for physicians to represent the latest therapeutic agents of the period. Revisions were prepared every decade by a Committee of Revision. This group gradually expanded to include both physicians and pharmacists who represented medical and pharmaceutical societies and colleges of medicine and pharmacy, and later was to include representatives of various government services and representatives of scientific societies.

In the late 1880's the manufacturing of medicinals had become a sizeable industry in the United States. Each manufacturer tried to make his product distinct by modifying a formula slightly, especially in regard to non-essential components. This resulted in a great deal of confusion with products bearing the same name but having different characteristics. A group of pharmacists prepared a formulary for use by pharmacists for the purpose of standardizing the many unofficial preparations commonly prescribed by physicians. These products varied slightly from manufacturer to manufacturer and both the physician and pharmacist had quite a task keeping them straight. The American Pharmaceutical Association published this work under the title, *The National Formulary of Unofficial Preparations*.

In 1906, both the Pharmacopoeia and Formulary were established as legal standards for our professions and the name of the latter was changed to *The National Formulary* to show its change from unofficial to official status. Although the scope of both works was different at the outset, they have become alike through necessity. To keep pace with the more rapid progress made in medicine, revisions of both publications are made more frequently now.

Most major countries throughout the world have seen fit to prepare pharmacopoeias. However, the U.S.P. and the N.F. of this country differ from others in that they are prepared by members of the two professions rather than by government groups.

Both standards guarantee physicians, pharmacists and the public that a substance labeled as a U.S.P. or N.F. product is of standard quality, purity and strength. It prevents the sale of adulterated or falsified drugs and prevents a manufacturer from misrepresenting a drug under a title which would lead to mistaken ideas about its composition. Drugs of proven value and proven identity should be our first choice from among the thousands of drugs now available.

## Organization PAGE

#### CIVICS

Norman A. Ross, M.D., Phoenix, Arizona

ARIZONA TUBERCULOSIS & HEALTH AS-SOCIATION, 111 East Willetta, Phoenix, Ariz.



More research in the baffling problems of Tuberculosis Control will be possible under the

**Buy Christmas Seals** , program of the National Tuberculosis Association and its 3000 local and state affiliates if more people buy and use Christmas Seals.

According to the Arizona Tuberculosis and Health Association the casual observer views the marked drop in the death rate from tuberculosis, the advent of the miracle drugs, the antibiotics, the increasing importance of surgery with an unwarranted complacency that TUBERCULOSIS is no longer a problem — Would that it were true!

No one better than the physician practicing medicine in Arizona knows the fallacy of this attitude — in a state where, percentage-wise, more tuberculosis is being uncovered than elsewhere in the United States.

Lacking the proven means of Tuberculosis Control at the state level — enforceable public health laws, tuberculosis isolation facilities, adequate diagnostic and treatment facilities for Tuberculosis, a functioning program for total rehabilitation — there is a challenge confronting the professional and lay citizens of this state.

You can help: (1) Support your local tuberculosis association's educational program. (2) Buy and USE Christmas Seals.

UNITED CEREBRAL PALSY ASSOCIATION OF CENTRAL ARIZONA, INC., 103 North Central Avenue, Phoenix, Arizona.

A new booklet — A Syllabus of Cerebral Palsy Treatment Techniques, published by Marguerite Abbott, who is an instructor, College of Physicians and Surgeons, Columbia University — is available at the local Cerebral Palsy office without charge to doctors who will request the same.

Over 75 copies of Cyril Courville's "CERE-

BRAL PALSY" have been distributed to requesting professional and lay persons by the United Cerebral Palsy Association.

The United Cerebral Palsy Association of Central Arizona and Arizona concluded a series of five two-hour lectures on the major aspect; of Cerebral Palsy and its problems in Phoenix. Discussions covered medical, psychological, educational, vocational, recreational, and community phases of the total problem. Meetings were attended by representatives of public health, professional, educational, vocational and lay groups as well as parents of victims. Success was such that program expansion statewide is developing.

MARICOPA COUNTY CHAPTER, MUSCU-LAR DYSTROPHY ASSOCIATION OF AMER-ICA, INC., 4431 N. 7th Avenue, Phoenix, Ariz.

Plans for the 1954 Muscular Dystrophy Campaign will be fully underway the latter part of November. The National Association of Fire Chiefs are supporting the 1954 campaign. This organization in Phoenix, together with the Firemen and Firefighters, are wholeheartedly behind the cause. Last year it was the Letter Carriers' March.

If public and medical interest so continues, it can be hoped that a cure for Muscular Dystrophy can be found — not in the far distant future — but within a few years. The slogan, "Hope for the Hopeless can be realized.

THE NATIONAL FOUNDATION FOR INFANTILE PARALYSIS, 120 Broadway, New York 5, N. Y.

A release from the National Foundation for Infantile Paralysis under date of October 12, 1954, and entitled "Report to Physicians: Polio Vaccine", details the accepted procedure for proving a prophylactic agent.

The vaccine of Dr. Jonas E. Salk offers such possibilities that the National Foundation has taken a calculated financial risk. It has placed orders with six pharmaceutical manufacturers for 25,000,000 cc's of "Salk Vaccine". The 25,-

000,000 cc's with the 2,000,000 cc's now on hand will be enough for 9,000,000 doses of three shots each. This will be ample for immediate use in highly susceptible groups.

The Foundation feels that the 1,400,000 children of the now upper grades who participated in the program voluntarily should have first call on the vaccine; that secondly the 4,825,000 children in the first grade next spring should receive prophylactic treatment; and that thirdly, pregnant women who meet certain criteria should be immunized.

It is most interesting to note that in the United States next year, there will be 4,825,000 children in the first grade. This group, of course, is the most highly susceptible and readily available age group. These children rightfully have claim on any available licensed vaccine and such vaccine must be at hand the moment its effectiveness is proven.

It is intended that the National Foundation's purchases may enable pharmaceutical manufacturers to process additional quantities for sale through the usual channels when and if the product is licensed by the National Institute of Health. The licensed vaccine will in the future be manufactured and distributed in the same manner as any other biological product. The National Foundation does not intend to purchase additional supplies of the vaccine nor to participate in further distribution of the vaccine once its outlined polio prevention program for 1955 is launched.

#### RADIUM and RADIUM D+E

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#### RECENT TECHNICAL ADVANCES.

a 2 minute Abstract

#### GRID RADIATION THERAPY

The rationale for the use of radiation therapy in the cure of cancer is evidence that there is an optimum cancericidal dose which will be effective if the surrounding tissues are not also injured excessively. There are several alternatives which may be used to limit the injury to normal tissues including multiple individual ports or continuous rotation, higher energy gamma and beta rays as well as neutrons. An extention of the conventional multiple port therapy is the use of a perforated lead-rubber grid which, in effect, is treatment through a large number of very small portals. The protected intervening tissue is able to exert a maximal protective role. Although the depth dose percentage-wise is smaller than with conventional therapy, the skin tolerance to doses which, under exceptional circumstances, may be as high as 24,000 r given by fractionation, permits adequate tumor doses.

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Phoenix, Arizona

Phone AL 8-1601

Maurice Rosenthal, M.D. George Scharf, M.D. Marcy L. Sussman, M.D. Seymour B. Silverman, M.D.

# Interesting—Topics

#### RECOMMENDED READING IN CURRENT MEDICAL JOURNALS

FOOD RATIONING IN ENGLAND - Many of us, in the last few years, as we sat at breakfast crabbing about the quality of our orange juice or grapefruit, or demanding four pats of butter on our hotcakes, may have felt a passing qualm of sympathy for the unfortunate British who were denied these "necessities" of life in their rationing system. An editorial in British Medical Journal of July 3, 1954, comments on The End of Rationing and reviews the effects of those stringent years on the health and physical well being of the citizens of Great Britain. The closing paragraph, comments on the beneficial effect of this rationing in these words:

"Altogether it has been a hectic but creditable chapter of British history. A population comes out of it with health unimpaired, and perhaps with better food habits, having learned something of food values of which it had known little before, and that efficiency in labor and joy in living are not necessarily imperilled by a tight-

ened belt."

RADIATION THERAPY AND GENERAL PRACTICE. An article by David S. Carroll, Memphis, Tenn., in the July, 1954 issue of the Journ. of the Med. Assn. of the State of Alabama, sets forth some of the conditions usually first seen by doctors in general practice and which are amendable to radiation therapy. Cancer of course is the most important condition and the general practitioner usually can only decide whether to refer the patient to a surgeon or a radiologist. Skin diseases make up a second large group. Then the author discusses briefly hypertrophy of lymphoid tissue of the nasopharynx; nontuberculous cervical adenitis; uterine fibromata where hysterectomy is not deemed advisable; subacute thyroiditis; tenosynovitid and bursitis; Marie-Strumpell disease of the spine; cellulitis; carbuncles; herpes zoster; inflammatory diseases in general.

CHOLECYSTECTOMY IN ACUTE EARLY CHOLECYSTITIS. Williams and Cline, in South Dakota Journ. of Med. & Pharmacy, July, 1954, report on 29 cases of uncomplicated acute cholecystitis treated by early cholecystectomy, and advocate this as treatment of choice in such cases.

JOINT MANIFESTATIONS IN COLLAGEN DISEASES AND RHEUMATIC DISEASES: Irving L. Sperling, Newark, N. J., writes on this subject in The Journ. of the Med. Soc. of N. J., June, 1954. The collagen diseases he describes and discusses include periarteritis nodosa, disseminated lupus erythematosus, scleroderma, darmatomyositis, rheumatic fever, rheumatoid arthritis.

TRAUMATIC CANCER. Ellenbogen, in The Journ. of the Med. Soc. of N. J., June, 1954. Cancer as the result of a single trauma is rare. but well authenticated cases have been reported. Segond's postulates have been accepted widely by courts and by oncologists. They are (1) The authenticity of trauma to the part must be established definitely. (2) The trauma must be a significant one. (3) There must be reasonable evidence of the integrity of the part prior to the injury. (4) The site of the tumor must correspond to the site of the injury. (5) The date of the appearance of the tumor must not be too remote from the time of the accident to be associated reasonably with it. (6) The diagnosis of the tumor must be established by clinical roentgen, and whenever possible, microscopic evidence.

ANTIBIOTICS, Warnings: - Every notable advance in medicine is likely to bring a train of ill consequences. This is true of the widespread use of antibiotics. Two articles and a case report in the July, 1954 issue of California Medicine emphasize these. Dr. Lowell A. Rantz of San Francisco, writes on "Consequences of the Widespread Use of Antibiotics"; he discusses superinfection by bacteria resistant to the antibiotic being administered; there are a large number of these and the control of such resistant infections requires the development of new antimicrobial agents and new knowledge about the use of older ones in combination. Drs. Farber, Ross and Stephens of Oakland discuss "Antibiotic Anaphylaxis", and Drs. Brainerd Uyeyama and Erickson of San Francisco report a case of severe anaphylacyic shock due to penicillin O in a patient previously sensitized to penicillin G. Drs. Farber, Ross and Stephens circularized 1000 California physicians and secured reports on 300 patients who had had severe anaphylactic reactions from parenteral penicillin and streptomycin.

THE MALE CLIMACTETIC. British Med. Jour .. June 12, 1954. An interesting discussion of this much disputed subject appears in this journal by Dr. A. W. Spence. He accepts the male cli-

macteric as a definite condition.

HYPERCHROMIC ANEMIAS. The laboratory investigation of these conditions is discussed by John F. Wilkinson, in the section on Clinical Pathology in General Practice, British Medical Journ., June 12, 1954. While most often seen as pernicious anemia, hyperchromic macrocytic anemia may occur in a number of less common conditions; these conditions cause difficulty in diagnosis but a correct diagnosis is important. since they often require different types of treatment.

CHEMOTHERAPY OF INFECTIOUS DISEAS-ES. A timely article by William H. Feldman, of (Continued on Page 478)

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#### one of the 44 uses for short-acting Nembutal

In a matter of moments, her nerves will be calmed. Her anxiety will be alleviated. And her tensions will slide into somnolence.

Short-acting NEMBUTAL (Pentobarbital, Abbott) can produce any desired degree of cerebral depression-from mild sedation to deep hypnosis.

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Hence, there's less drug to be inactivated, shorter duration of effect, wide margin of safety and little tendency toward morning-after hangover.

In equal oral doses, no other barbiturate combines quicker, briefer, more profound effect.

Good reasons why the number of prescriptions for short-acting NEMBUTAL continues to growafter 24 years' use in more abbott than 44 clinical conditions.



#### (Continued from Page 476)

the Section on Pathology, Mayo Clinic, in Diseases of the Chest, July, 1954. He discusses the development of chemotherapy, the values, misuse and hazards. He lists in table form the currently used sulfonimides and other synthetic antimicrobial agents, with their possible toxic effects. Likewise the currently important medicinal antibiotics, with their indications and possible toxic effects. In using such remedies there must be a constant awareness of untoward effects. "A small but definite risk should be recognized and a compromise attained between the good that may be accomplished and the possibility, even remote, that undesirable effects of variable degrees of seriousness may ensue."

ENDOMYOCARDIAL FIBROELASTOSIS. Halliday, in Diseases of the Chest, July, 1954. An interesting discussion of this condition which the author says is "not infrequent". He reports in some detail on thirty cases, one of whom survived twenty years.

THE DYNAMICS OF HEMOPOIESIS. British Med. Journ., June 5 1954. The Thomas Huxley Lecture by Sir Lionel Whitby, Regius Prof. of Physics at Univ. of Cambridge. This scholarly lecture is well worthy of substitution in place of an hour TV relaxation watching your favorite baseball team getting clobbered. Try it.

Opening sentence:—"Even the most casual surof the activities of the haemopoietic system, which has to maintain a constant population of erythrocytes, leucocytes, platelets, and other factors in the face of losses caused by daily wear and tear, can leave no doubt that the system is highly dynamic."

GENERAL PRACTICE IN AMERICA AND GREAT BRITAIN. Charles M. Fleming, British Medical Journal, June 19, 1954. Many articles have been written by American physicians, after visiting England, about the practice of medicine in that country. Here is a very frank and interesting analysis of general practice in the United States Charles M. Fleming, Principal Medical Officer Department of Health for Scotland. One point which struck him forcibly was the equipment and office space which even the general practitioner in a small community felt necessary to carry on his work efficiently, so that he felt that the present-day needs in British general practice were, (1) adequate time to do his work efficiently; (2) facilities to practice medicine the way he had been taught; (3) some useful form of attachment to a hospital; (4) regular and appropriate postgraduate training. In all these respects he found the practitioners in the United States to be in better position than our British conferers.

MEDICAL PROBLEMS, Unsolved and New. Texas State Journ. of Med., June, 1954. This is the presidential address to the Texas State Medical Association, at San Antonio, May 3, 1954, by our good friend, George Turner, of El Paso, Texas. The problems he discussed included: 1) Veterans' Medical Care, and especially the medical care of veterans with nonservice connected disabilities; (2) health insurance and the proposed government subsidy; (3) education by television in county medical societies; (4) nurse recruitment and the work of the Woman's Auxiliary; (5) physician-hospital association and the practice of medicine by hospitals; (6) osteopathy and the question of relationship between medicine and osteopathy; (7) public health services. Each of these problems is discussed tersely and pointedly. Well worth reading.

ANESTHESIOLOGY. The New England Journ. of Med., June 24, 1954. This is the second of two articles on Medical Progress, being a review by Papper and Ngai, of the Anesthesia Service of Presbyterian Hospital and Columbia University College of Med. and Surg. Somehow, the first article was missed. These reviewers covered 236 reference articles, list of which is appended to the concluding article above mentioned. Their summary is interesting:

"Developmental advances in anesthesiology during the last decade are outlined largely in the direction of studies designed to elucidate basic mechanisms of the anestheyized state. Progress in understanding the physiologic derangements occurring during anesthesia has been made. It appears noteworthy, as a sign of the interests in this field, that work in the development of new drugs has not been so important as the efforts to understand the old ones more completely."

In other words it takes a thoroughly educated doctor of medicine, rather than a highly skilled technician, to make the best anesthesiologist.

CANCER OF THE LUNG. Ochsner, Ray and Acree, The Journ. of the La. State Med. Soc., July, 1954. Any article by Ochsner makes interesting and lively reading, and particularly one on cancer of the lung. With Graham and certain English writers, he is an outspoken protagonist of the idea (or fact) that cigarette smoking is the main cause for the marked increase in the incidence of lung cancer. In 1920 cancer of the lung represented 1.1 per cent of all cancers; in 1948 it was 8.8 per cent; Ochsner predicts that by 1970 cancer of the lung will represent 18 per cent of all cancers. By that date, unless something is done to prevent it, one in every 10 or 15 men living will have cancer of the lung. Fifteen years ago the peak incidence was about at age 65; today it is at 55. While there is lack of complete unanimity concerning the cause of this unprecendented increase in lung cancer, these authors are convinced from their observations that it is due to the carcinogenic effect of cigarette smoke. The article discusses the symptoms. diagnosis, treatment and survival rates. Good readers except a little disquieting for cigarette smokers!

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## Woman's AUXILIARY

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Mrs. Donald A. Polson, Student Loan Fund Chm.

Phoenix, Arizona

I HIS is to introduce some of the women who have utilized the Student Nurse Loan Fund. They are fine girls with high standards and a great sense of responsibility. This is demonstrated by the fact that they have established a career on their own which in itself gives a sense of achievement, and also in the fact that repaying their loans they make available funds which will assist other future nurses to realize a similar ambition. Unfortunately it is not possible to present photographs of all our graduate nurses - space will not permit. The pictures below show two registered nurses who are representative of those having used the Loan Fund. The three group pictures show the young women who are in the various Schools of Nursing at this time.

Mary Gustafson was one of the first to utilize our Student Nurse Loan. She graduated in '53 from St. Mary's School of Nursing in Tucson. She has a position at the Pima County Hospital. To quote a letter received recently from Mrs. Donald B. Lewis, Tucson: Mary is very enthusiastic about her work. She radiates with personality and is doing a superb job at the County Hospital.



LaVerne Timeche graduated in 1954 from Good Samaritan Hospital. According to the people that know, she is indeed a valuable asset. She worked at Ganado Hospital with the U. S. Public Health Service in the Cancer Program instigated this summer on the Indian Reservation. To quote a letter

received from her lately, she says, "After I graduated, I obtained employment with the U. S. Government. My request was to work with the Indians of the Navajo Tribe. The Window Rock office appointed me to a position at the Western Navajo Hospital at Tuba City, Arizona. I like my work very much and I will hate to leave when I plan to resume my schooling, but I think I can help my people more by entering the public health field, and that is what I want to do most".

The records of all these students are excellent.

#### GOOD SAMARITAN HOSPITAL, PHOENIX, ARIZONA



These are the girls at the Good Samaritan Hospital School of Nursing, Phoenix. Left to Right; Eleanor Garcia; Belen Alvidrez and Nancy Wilcox.

Nurse Loan Fund and the amount of mony circulating is \$5,750.00. These girls have come Phoenix, Prescott and Tucson.

To date 22 women have used the Student from many parts of the state: Clifton, Douglas, Kingman, Laveen, Miami, Morenci, Nogales,

#### ST. JOSEPH'S HOSPITAL, PHOENIX, ARIZONA



These girls are in St. Joseph's School of Nursing in Phoenix. Left to Right: Myra Higgins; Lois Ann Enos; Lydia Zuniga; and another student Cecelia Chavez is on psychiatric affiliation in Albuquerque, New Mexico so she was not available for the picture. Lois Ann, Lydia and Myra are in their first year. Cecelia graduates in 1955.

#### ST. MARY'S HOSPITAL, TUCSON, ARIZONA



These are the nurses in school at St. Mary's School of Nursing. From Left to Right: Collen Horner; Cecilia Fuentes; Sylvia Espinoza and Frances Zappia.

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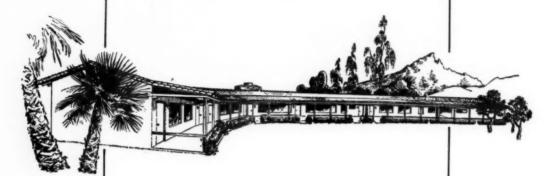
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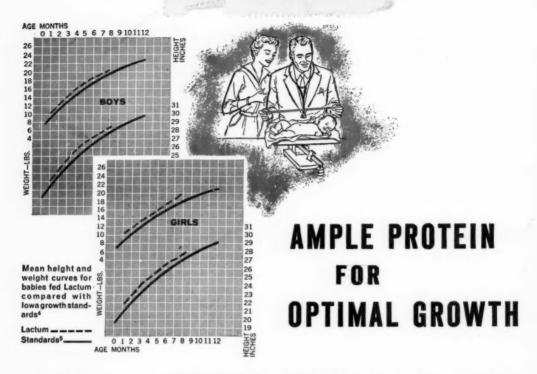
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(1) Jeans, P. C.: In A.M.A. Handbook of Nutrition, Ed. 2, Philadelphia, Blakiston, 1951, p. 275. (2) Albanese, A. A.: Pediat. 8: 455, 1951.(3) Holt, L. E., Jr., and Mc-Intosh, R.: In Holt Pediatrics, Ed. 12, New York, Appleton-Century-Crofts, Inc., 1953, pp. 175-178. (4) Frost, I. H., and Jackson, R. L.: J. Pediat. 39: 595, 1951. (5) Jackson, R. L., and Kelly, H. G.: J. Pediat. 27: 215, 1961.

\*Calculated on the basis of a daily allowance of 3.5 Gm. per Kg.



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